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TREATMENT

OF

DISEASES OF WOMEN,

PUERPERAL

AND

NON-PUERPERAL.

BY

CHARLES H. GOODWIN, M. D.

Being the Latest Contributions to this important branch of Medical Science, based upon the Most Recent Practical Experiences and Investigations of the present day, by the following Eminent Gynæcologists and Specialists:

Drs. T. Gaillard Thomas, P. F. Mundé, J. B. Hunter, Wm. T. Lusk, J. W. McLane, H. J. Garrigues, M. A. Pallen, I. E. Taylor, R. Tauszky, C C. Lee, A. C. Post, A. E. M. Purdy, A. J. C. Skene, Fordyce Barker, J. Marion Sims, W. M. Polk, E. L. Partridge, T. A. Emmet, A. S. Hunter, W. Gill Wylie, W. M. Chamberlain, F. P. Foster, C. S. Ward, W. R. Gillette, Etc., Etc., Etc.

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PREFACE.

In this volume the author has endeavored to present, in a thorough and complete manner, the treatment of all the important diseases of women, both puerperal and non-puerperal.

It is well known that the many recent advances which have been made in the pathology of most of the diseases peculiar to women, have led to numerous important changes, and to the expression of new views, and new methods, as well as new remedies, in the matter of treatment. With this idea constantly in mind the author has aimed to present to the profession a work which embodies only these latest contributions to this important branch of medical science, from the eminent gynæcologists and specialists of New York City, based upon their most recent practical experiences and investigations of the present day.

The fact that the author's previous works, on Diseases of Infancy and Childhood, and on Heart and Lung Diseases, have passed through so many thousands in such an incredibly short space of time—but, more especially, that so large a number of requests have come from subscribers to those works—has determined him in presenting this volume to the profession, and it is earnestly hoped that it will be received with equal satisfaction.

In the preparation of the manuscript the author is very greatly indebted to his friend Dr. D. E. English, of this city.

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PUERPERAL SEPTICÆMIA.

(METRIA, OR PUERPERAL FEVER.)

In regard to this affection, it may be said in general that the treatment of puerperal sepsis is but little, if any, more satisfactory than its pathology. When several cases, coming with shorter intervals, occur in a hospital there is but one method to be pursued. The patients must be removed, the wards disinfected, the floors and walls washed with strong disinfecting solutions, and everything else thoroughly disinfected. As to the choice of a material for this purpose, it would seem that corrosive sublimate is the most certain in its effects. In private practice, however, prophylactic cleanliness, thorough emptying of the uterus after delivery, and the insurance of uterine contractions are the best and only safeguards so far as the woman is concerned. It is scarcely necessary to reiterate the caution as to the cleanliness of instruments and the hands of the ac-

coucheur. But when, by any mishap, the puerperal woman is seized with the disease, the main reliance must be placed upon quinine, intra-uterine injections, opium and stimulants. At present, cases of puerperal sepsis are extremely liable to take on a remittent form, and quinine must be given in full doses.

It is important to remember that a given amount of any drug is not a dose, unless it has the required effect. It may also be stated quite positively that the day of depletion in these cases has passed. Intra-uterine injections are of the utmost importance, but caution is required in their use, and to employ a syringe that is not perfectly clean is worse than useless. Lastly, the bowels should not be neglected, and it is important that they should act, and thoroughly, before the patient is fully under the influence of opium—in case that drug be employed—for in these cases it is extremely difficult to re-establish peristaltic action after it has once been paralyzed.

DR. T. GAILLARD THOMAS defines puerperal fever as puerperal septicæmia. It matters not, he advises, whether it assumes a form of phlebitis, cellulitis, lymphangitis, etc., the essence of the disorder is the absorption of poison into the blood of the parturient woman through some solution of continuity in the tissues of the genital tract.

Concerning the treatment of this condition, he regards it as the duty of every practitioner to guard his patient against puerperal septicæmia by every means in his power. He gives the following rules with reference to prophylactic measures, which, in his opinion, should be adopted in all midwifery cases, whether they occur in hospital or private practice.

I.—The room in which the confinement is to take place should have the floor, walls and furniture thoroughly washed with a ten per cent. solution of carbolic acid, or mercury bichloride 1-1000, and the bedstead and mattresses should be sponged with the same solution. Curtains, carpets and upholstered furniture should be dispensed with as far as possible.

II.—The nurse and physician should take care that all their clothing, both under and upper, be clean and free from exposure to the effluvia of any septic affection. Should either of them have been exposed within a fortnight to the effluvia of such affections as scarlet fever, typhus fever, erysipelas, septicæmia or the like, they should change every article of clothing and bathe the entire body, especially the hair and beard, with a reliable solution. That which he prefers for this purpose is a saturated solution of boracic acid.

III.—As labor sets in, the nurse, having thoroughly washed her hands, cleaned her nails with a stiff

nail-brush and soaked them in antiseptic fluid, should administer to the patient a warm vaginal injection of antiseptic character; bathe the vulva and surrounding parts freely with the same, repeat this every few hours during labor, and keep a napkin wrung out of the warm antiseptic fluid over the genital organs until the birth of the child.

IV.—Before assuming the functions of their respective offices at the moment of labor, both doctor and nurse should wash the hands thoroughly with soap and water, *scrub* the nails with a stiff nail-brush, and soak the hands for several minutes in bichloride solution of 1 to 1000.

V.—The first two stages of labor having been accomplished, the third stage should be efficiently produced; all portions of placenta and membranes removed, and ergot administered in moderate doses, three times a day, and kept up for at least a week for the complete closure of the uterine cavity, expulsion of clots, and occlusion of the utero-placental vessels.

VI.—The physician, taking nothing for granted, not satisfying himself with a vague report of the nurse, should, at the conclusion of the labor, carefully examine the vulva of the patient. If the perineum be lacerated it should be closed at once by sutures to shut up this avenue to septic absorption;

and should slight solutions of continuity be found in the labia or the vulvar extremity of the vagina, these should be dried by pressure of a linen cloth, touched with equal parts of sol. ferri persulph. and carbolic acid, again dried thoroughly by pressure with the cloth and then painted over with gutta-percha collodion. If this be thoroughly done, absorption will be prevented at these points for at least three or four days, when the application may be repeated.

VII.—In six or eight hours after the labor, when the patient has rested, the vagina should be syringed out with an antiseptic solution, and a suppository of cocoa butter, containing gr. iii–iv. of iodoform, should be placed within it under the os uteri. A syringe with intermittent jet should be used, which will wash away with gentle force all blood-clots. For this purpose, he advises, reliance should not be placed upon the feeble drip of the fountain syringe, the advantages of which are, in his opinion, entirely theoretical.

VIII.—These vaginal injections and suppositories should, in cases of normal labor, be repeated every eight hours; in cases of difficult or instrumental labor, twice as often; and they should be kept up for at least ten days, the nurse observing to the last the precaution of washing her hands before any approach to the genital tract of the patient.

IX.—When catheterization becomes necessary, it is safer to employ a gum-elastic catheter, which before use should be thoroughly immersed in antiseptic fluid, and which should be destroyed at the conclusion of the case, rather than to trust to the nurse's cleansing of an old silver instrument, bearing within it the register of a list of cases of septicæmia in which she has employed it during the past two or three years. It is a very common and very bad habit, he cautions, for nurses to own silver catheters, which they carry about with them from case to case of midwifery.

X.—Last, but by no means least, the physician should inform himself by personal observation as to the competency of the nurse to syringe out the vagina thoroughly, to place the antiseptic suppositories just where they should be, and to use the catheter without injury to the patient. Neglect of this precaution, he finds, has frequently resulted in leaving a fœtid upper segment of the vagina entirely unwashed, while the antiseptic stream was limited to the lower third of the canal.

Regarding the prophylactic treatment, also, DR. THOMAS protests in the strongest manner against the use of intra-uterine injections, except after very severe operations within the uterine cavity which render the occurrence of septicæmia almost certain.

But as a preventive measure, to be uniformly adopted, he looks upon it as to the last degree rash and reprehensible.

For direct means of treatment for the cure of puerperal septicæmia, as soon as a diagnosis is determined upon, he directs that all pain, nervous perturbation, shock, and mental anxiety be quieted by opium, unless some special and very decided idiosyncrasy with reference to the drug be ascertained to exist. He gives:

℞. Sol. morphiæ sulph. (Magendie) . m. x.
Sig. To be administered hypodermically.

And throughout the severity of the attack, whenever suffering of mind or body occurs (perhaps it will be about once in every six or eight hours) this is repeated sufficiently often to allay it. In his experience no other method of administering morphine in these particular cases compares with this, and as it is not to be continued long, there is no fear of causing the patient to become addicted to the drug as a vice. In giving it, he advises, if a small, sharp and *new* needle be used, if it be thoroughly cleansed with soap and water before each time of using, and be dipped in a solution of bichloride, 1 to 1000 of water, just before each injection, no abscesses will occur. On the other hand, it is the use of the large, rusty, unwashed and unpurified needle, which the

doctor's economy makes last him for many months, that so commonly results in them.

DR. THOMAS now aims to decide whether, in his opinion, the septic disease which is developing has originated in the wounds situated between the os internum and the vulva, or in the endometrium above that point. If in the former situation, he persists for a time longer in the more thorough use of vaginal injections; if in favor of the latter, intra-uterine injections are at once resorted to. Usually, he advises, this question has to be decided by the efficacy or inefficacy of frequent germicide vaginal injections in bringing down the temperature and controlling the grave symptoms. Should failure in these respects seem to prove that the origin of the disease is higher up the genital tract, more decided and radical measures are taken.

The patient having been entirely relieved of pain and thoroughly quieted, the first injection is practiced in this way: An India-rubber cloth is quietly, and without hurry, noise or disturbance on the part of the nurse, spread over the edge of the bed on which the patient lies, and made to fall into a tub of warm water rendered antiseptic by the addition of two or two and one-half per cent. of carbolic acid, or of the bichloride of mercury, 1–2000, or of some other reliable germicide. Then Chamberlain's glass

uterine tube, or the tube invented by Dr. Geo. H. Lyman, and which DR. THOMAS considers a very excellent and ingenious one, thoroughly fitted to a Davidson's or Higginson's syringe, is immersed in the tub. The nurse now aiding the patient by the shoulders, and the physician by the hips, she is gently laid across the bed and made comfortable with a pillow under the head. Each foot is made to rest upon a chair placed at either side of the tub, and the patient entirely covered over with a couple of blankets. Placing himself between the knees of the patient, he now takes the tube in the right hand and passes it gently up to the fundus of the uterus; in the meanwhile a stream of water is made to flow through it by the nurse, who squeezes the syringe bulb. The stream of water, which has been steadily flowing, is now projected with gentle force against the walls of the uterus, washing away adherent blood-clots, detaching portions of hanging membrane, and everywhere neutralizing the influence of the poison which has excited the disorder.

After the first injection he directs that the position of the patient need not be disturbed, but the injections may be practiced as she lies upon a bed-pan. In some cases in which he has reason to suspect that portions of the placenta or membranes have been retained, he chloroforms the patient,

passes the hand, rendered thoroughly aseptic, within the cavity, and very gently scrapes off adherent masses from the uterine walls, using the nails as a curette (as advised by Dr. Wilson of Baltimore). Or, in certain instances he has rubbed the whole endometrium with an aseptic sponge, held in a long sponge-holder; or employed the largest of his curettes, to remove clots and adherent secundines, with great apparent advantage.

Concerning intra-uterine injections, he advises, that the use of antiseptic uterine injections after parturition is attended by danger is beyond question. The greatest hazard attending this plan is the entrance of air into the uterine sinuses; the next, the production of hæmorrhage by detaching some of the thrombi which fill the mouths of the uterine sinuses; the third, the danger of forcing the fluid used as an antiseptic directly into the general circulation, through the introduction of the tube into the mouth of a sinus; the fourth, the causing of convulsions, violent pain, or nervous prostration, by a sudden and baneful influence upon the nervous system; and fifth, the passage of the tube into a Fallopian canal, and the injection of fluid directly into the peritoneal cavity.

But these dangers, he finds, may be to a great extent avoided by careful attention to details: (*a*) By

using a large injecting tube—as large as the finger—which cannot enter an open mouthed sinus; if this is done, he does not think there is the least probability that air will be introduced, but when a catheter is employed, there is then danger of inserting it into a sinus and introducing air and fluid together directly into the vessels; (*b*) by using water warmed to 105°; (*c*) by injecting the fluid through the tube so as to exclude air before passing this up to the os uteri; (*d*) by exerting only a moderate degree of force in throwing the jet against the uterine walls; (*e*) and by proceeding with the whole affair gently, cautiously, slowly, and intelligently. In these regards, he directs that the tube should never be allowed to fill the os uteri completely, so as to prevent the escape of the injected fluid. If the cervical canal is so narrow as to hug the tube closely, it should be dilated with dilators of hard rubber, with the fingers, or with Barnes' bags, before the injection is practiced. Also, a solution of the persulphate of iron is always to be at hand, in case of sudden hæmorrhage from displacement of a thrombus. And should this accident occur, ergot is immediately given hypodermically, the iron solution at once added to the antiseptic solution and allowed to pass into the uterus, and pressure made upon the fundus so as to stimulate the contraction of the uterine

fibre to accomplish closure of the open sinuses in that way.

Therefore, judged in this manner, DR. THOMAS is very confident that intra-uterine injections for puerperal septicæmia deserve a place among the most valuable resources for the saving of life which modern pathology affords.

The frequency of their use, he advises, varies greatly with individual cases. In mild cases of septicæmia, where the temperature comes readily down after the uterus has been washed out, and rises very slowly, they need only be used once in every five hours; in other instances they become necessary once in every three hours; and in bad cases he finds that they are required once every hour. Furthermore, it is insisted that these injections be always administered by a physician, always carried fully up to the fundus uteri, and always used with every regard to caution as to detail (already mentioned).

Concerning the instrument employed, some, he finds, prefer those syringes which allow of a steady flow of a stream of water, propelled by gravitation, as is the case with the so-called fountain syringe, which is so popular among the profession. This is partly because greater safety is supposed to attach to these, and partly from a theory that danger attends the propulsion of a stream by intermittent jet

against the uterine walls. For a number of years he also shared this belief, but experience has taught him that a gentle projection of the fluid is an advantage, as by this means a more thorough cleansing is accomplished, and that with due caution no more danger attends this plan than that of the steady flow. Some also, he advises, have adopted continuous irrigation of the uterine cavity, but this, he is perfectly certain, is a delusion and a snare, since it gives the appearance of great thoroughness which it does not possess, for the reason that by this plan it is very difficult to bring the germicide fluid into full contact with the entire endometrium. For vaginal irrigation, however, he considers it an excellent method, but when applied to the uterine cavity he has seen it allow the temperature to remain high, and has replaced it by the intermittent douche, used only as often as every three hours, with striking results. Nevertheless, in very severe cases he prefers to employ continuous irrigation, replacing its use every third hour by that of the intermittent current, rather than exhaust the patient by half-hour disturbances and injections, as has been advised by some.

The uterus having now been thoroughly cleansed, and the patient entirely quieted, DR. THOMAS directs his attention to controlling the temperature.

which, in septicæmia of puerperal character, runs so high and maintains itself at so exalted a range as to contribute one of the immediate factors of a fatal issue. But, he advises, even if this were not the case, the patient's strength is so much exhausted by prolonged high temperature, her nerve-power is so much depreciated, her blood-state so rapidly injured, and her comfort so decidedly interfered with, that these considerations alone would point to the propriety of combating hyperpyrexia.

For this purpose he formerly relied upon the affusion of cold water, the patient lying upon Kibbee's cot; at present he accomplishes the same result much more easily and more pleasantly for the patient by the use of Townsend's rubber-tube coil. In this he has most implicit confidence. It consists of a mat composed of rubber tube rolled upon itself in a circle, and which covers the whole abdomen from the ensiform cartilage to the symphysis pubis; the upper end of the tube constituting this net is anchored by a weight in a tub of ice-water, placed about three feet above the level of the patient, while the lower end falls into a tub upon the floor. By syphon action the water of the elevated tub runs through the tube which forms the net and collects in the receptable on the floor. By this means a temperature of 104° can

very readily, as a rule, for there are exceptions to the rule, be kept at 100° for weeks together. In the Woman's Hospital, where convalescents from laparotomy are constantly under treatment in large numbers, this means of controlling temperature is as commonly and as freely in use as poultices are in general hospitals, or gargles in dispensaries for diseases of the throat, and yet DR. THOMAS has never met with any difficulties—the development of complicating diseases such as pleurisy, bronchitis, pneumonia, chills, etc.—and very rarely with failure as to the desired result. There are some peculiarities about the coil, however, which should be remembered. Very often, he advises, it will not succeed in controlling the temperature for twenty-four hours; its prolonged use alone develops and illustrates its great benefits. Also, removing it from the body for an hour at a time damages its influence very much. Regarding the chilliness which it excites, he has never seen evil results from this, if hot bottles be kept at the soles of the feet; and in not one instance out of hundreds of cases, has he seen pneumonia or pleurisy excited by it.

DR. THOMAS also aims to so keep the nervous system of the patient under the influence of febrifuge medicines, as to control the tendency to chill and pyrexia. For this purpose he administers quinia

sulph. gr. xv. in capsule, or by suppository, night and morning; or, in place of this, two capsules may be given night and morning of Warburg's tincture, in the form of a solid extract (each capsule contains the potency of fl. ʒ ii. of the tincture); or, to the same end, the salicylate of sodium may be employed.

He also directs that the patient's diet receive careful attention. This should consist entirely of fluid food, given often and in small amounts. The staple article, however, should be milk, but animal broths and gruels may be alternated with it with advantage.

Finally, in order to carry out this method of treatment effectually, he advises that at the very commencement of a case of puerperal septicæmia, the attending physician should, in the patient's interest, surround himself with efficient and abundant assistance. For, he cautions, if he undertakes to wash out the uterus every four or five hours without other assistance than that of the nurse, and if the patient is to rely for the constant attention and care, which she will inevitably require, upon one nurse, it is needless to point out that the duty of both doctor and nurse—vital duties, it must be remembered—will be but half performed; and, unfortunately, the penalty will fall upon the patient and her friends. In private practice he considers it necessary for the attending

physician to associate with himself some young practitioner, who has the time to devote to the case, and the intelligence to use the uterine douche safely and efficiently. Furthermore, two nurses are necessary, one to be in charge for twelve hours, and the other to relieve and replace her for an equal time.

As to antiseptics, those, he advises, which have heretofore been tried under these circumstances are, thymol, boracic acid, salicylic acid, carbolic acid, and mercury bichloride. Of these, however, all have disappeared before the superior merits of the last two; and carbolic acid, which for so long a time has been almost supreme, is, in DR. THOMAS' opinion, about to be abolished in favor of the bichloride of mercury, one part in one thousand, or two thousand, of water. For all antiseptic purposes outside of the uterus, the bichloride is now, he finds, owing to the carefully made and important investigations of Koch, very generally employed in the strength of 1 to 1000; and, also, the uterus has now been washed out with this excellent germicide, 1 to 2000, often enough to make him regard its use as an intra-uterine injection as entirely warrantable. If, however, carbolic acid be used in that way, he advises that it would not be safe to carry its strength beyond a two, or at most a two and one-half, per cent. solution.

DR. E. L. PARTRIDGE insists upon the importance

of personal cleanliness, with reference to prophylactic treatment, on the part of the medical attendant, as well as of the purity of the atmosphere. Inasmuch as the poison can be conveyed from place to place, it is absolutely essential, he advises, that both the physician and nurse observe the utmost strictness in this respect, especially keeping the finger nails clean and rendering them antiseptic. In prolonged labors he considers it necessary and proper in *all* cases to use disinfectant vaginal injections *during* labor, and their judicious employment, not too frequent, is also called for *after* labor. And even after cases of normal labor, vaginal injections are always resorted to by him as a prophylactic measure, although not oftener than twice daily. Furthermore, the proper management of the third stage of labor is of the highest importance, looking to the complete expulsion of clots and secundines, and permanent uterine contractions.

With regard to the management of the case after the disease is established, he is in favor of the use of intra-uterine injections, and resorts to them with a frequency varying from once in every four or five hours, in moderate cases, to once every hour in bad cases, according to circumstances. If the point of inoculation is within the uterine cavity, or where it is known that this cavity contains decompos-

ing fluid, warm carbolized intra-uterine injections are repeated every few hours, and he finds they usually cause the temperature to fall promptly. Care is necessary, however, that the injection should be made slowly, and that there is free escape for the fluid. If sloughs occur, these are removed as early as possible, and contiguous exposed surfaces are covered with iodoform, or touched with carbolic acid or tincture of iodine. For local or general parametritis, leeches only may be beneficial. When exudation is present, vaginal injections of hot water and externally poultices are often serviceable. Pelvic abscesses are treated by aspiration or incision. To relieve the pain opiates are administered, and quinine is also given for its antipyretic and supporting effects, together with stimulants as indicated. The diet also receives careful attention, and the food is made concentrated and easy of digestion. General blood-letting is, he advises, improper at any state of general septicæmia, and if arterial sedatives are used, their effect must be watched with the greatest care. Salicylic acid may also be found of service to reduce the temperature, and the wet pack, carefully employed, is equally useful. Should the patient suffer from excessive tympanites, stimulating enemata, asafœtida or turpentine, will affond some relief; or even aspiration of the

intestine with fine needles is, in certain cases, resorted to.

Concerning the agent employed for intra-uterine injections, Dr. PARTRIDGE mentions that the late Dr. Beverly Livingston introduced into the practice at the Nursery and Child's Hospital what he believes to be a most excellent supplement to the intra-uterine treatment, namely: after cleansing the cavity of the organ, a mixture of the following is employed:

℞. Iodoformi . . . . . ʒi.
Glycerinæ . . . . . ℥x.
M.

This is injected to the amount of one, two, or three ounces into the uterine cavity after finishing with the douche. He considers this not only an excellent adjuvant, both in hospital and in private practice, but also a measure by which, if adopted, it is possible that a certain amount of intra-uterine injection may be dispensed with. With reference to the bichloride solution he is not in favor of its use.

So far as the vaginal douche is concerned, he certainly believes that it is capable of doing a great deal of harm, unless properly used. He does not trust any nurse to give it, unless he knows positively that she is skilful. Then, if used twice in twenty-four hours, even in cases of normal labor, it can do no harm. Moreover, he advises, there is not any

single indication for this resort; it is only when there is a combination of symptoms which indicate the presence of decomposing substance in the uterus, that it should be employed, and then not too frequently. Also with reference to thorough drainage, which the anatomical conformation of the parts is said to afford, it is uniformly his experience that when a digital examination is made the finger is covered with blood and mucus, offensive, and in a condition to readily become poisonous in character.

Regarding the use of the coil for the reduction of temperature, DR. PARTRIDGE believes it to be more efficient than any other agent, but advises that immediate and marked results from this plan of treatment must not be looked for. Nor, furthermore, does he consider the absence of peritonitis a reason why this means should not be employed; and as far as any objection to its use on the part of the patient herself is concerned, as to the liability to produce chilliness, etc., he has never met with such, particularly in hospital practice, and is doubtful if it produces any more discomfort than does the ordinary rectal injection administered for the first time. When using it, he greatly favors the rubber in preference to the metal coil, as the former is more easily kept clean.

DR. PAUL F. MUNDE has always believed that, in the majority of cases, puerperal fever is puerperal septicæmia, due to absorption of poisonous matter from the genital tract. But he does not make this the cause for all cases; that is to say, he inclines somewhat toward the view that puerperal fever may be a disease by itself, and he has seen cases in which there was no evidence of septic absorption.

With regard to intra-uterine injections, he does not think that Dr. Thomas points out sufficiently the exact indications for their use. It will not answer, he advises, to simply say that every time the temperature rises, or there is a fetid discharge from the vagina, the uterus must be washed out; but there must be more exact indications. He mentions a case from his practice in which there was a rise of temperature to 103° F., but there was no fetid lochia. This was at about the time for the beginning of the secretion of milk. In this instance he did not inject the uterus, the temperature fell under the influence of aconite and quinine gr. xx., and the subsequent progress of the case was favorable. He therefore believes that a mere rise of temperature does not indicate the use of intra-uterine injections; nor does the mere existence of fetid lochia. There must, he advises, be an association of the two, or a combination with other symptoms, as with a chill, or

manifest constitutional disturbance, to call for their use in the puerperal state. Moreover, in his estimation, the very *absence* of lochial discharge may be a good reason for washing out the uterus, fetid or otherwise. In one case, he found that the lochia was retained on account of anteflexion of the organ; absorption took place and a chill occurred. He corrected the malposition, and a large quantity of fetid lochia was discharged. Hence, he cautions, the mere absence of fetid lochia would, in this instance, have been an unsafe guide in deciding whether or not the uterus should be injected. Therefore DR. MUNDE does not wash out the uterus, unless the condition of the lochia means something more than the mere offensive or fetid lochial discharge. And, in his experience, the very worst cases of puerperal fever are those in which there is entire absence of local symptoms, and the patient appears to be quite comfortable.

With regard to the claim that the ordinary lochia is not necessarily septic, and that the genital tract is not necessarily in a condition of laceration, or in a condition favorable to the development of puerperal septicæmia, he advises that it has been demonstrated (by Ahlfeldt) that the most poisonous lochia was entirely inoffensive; and he further believes that no primipara is delivered without some lesion of the

genital tract, while of multipara there is, in his estimation, probably not a case in which there is not some laceration about the cervix. Besides, it has been likewise shown that the most dangerous period in the puerperal state for septic infection is about the third day; consequently he believes that vaginal injections should be given for four, five, or six days at least, when perhaps they may be safely omitted.

As to the manner of giving intra-uterine injections, DR. MUNDE does not agree with Dr. Thomas at all. Indeed, he has met with cases in which Davidson's syringe, and, too, in the hands of competent nurses, has produced the most severe collapse. Furthermore, he objects to propelling a stream of water with force into the puerperal uterus, and he also believes there is a time when intra-uterine injections are no longer useful, *e. g.* When the temperature is not reduced permanently within forty-eight hours, the injections having been given three or four times a day, the measure will, as a rule, fail. It is true there are exceptions to this rule, as there are to all others, but he is quite sure of having several times seen a chill with rise of temperature follow an intra-uterine injection. Finally, he has seen patients who were suffering from the worst form of puerperal fever, when the discharge was no longer offensive and the uterus was widely dilated,

With reference to para- and perimetritis during the puerperal state, whenever there is such a local inflammation, he advises, *do not wash out the uterus.*

Concerning the drug to be used for intra-uterine injections, he is inclined to favor the bichloride of mercury solution, 1 to 2000. His rule is, in every case of confinement, and especially if there is an outlook for a labor of unusually long duration, or it is likely to be difficult, or there is a probability that operative interference will be necessary, to wash out the vagina, perhaps after every vaginal examination, and then immediately after the child is born. Also, if he has introduced his hand into the uterus, he washes that cavity out with *carbolized ice-water* of the strength of two or three per cent. He does not use hot water habitually for this purpose, because he finds that it cannot be employed very hot without the liability of injuring the patient, and when only warm it is not a hæmostatic. Ice-water, however, is effectual as a hæmostatic, and it will not harm the patient. He then administers a syringeful of the fluid extract of ergot hypodermically, deep into the abdominal walls, and also gives ergot, quinine, and strychnia, until the uterus is thoroughly involuted. With this, two or three vaginal injections are also given daily.

Furthermore, as a prophylactic measure after normal labor, DR. MUNDE uses vaginal injections, and directs that they be given once, twice, or three times a day while he continues his visits. But, he advises, while this may not be absolutely necessary, yet he has never seen any damage done by ordinary vaginal injections with a *fountain* syringe, and he considers it wise to resort to them.

DR. W. M. POLK considers this disease as representing a condition of things which is identical with, and which differs in no essential respect from, surgical septicæmia and pyæmia; and that the variations which exist in its clinical history, or in the pathological lesions, are simply those which are peculiar to the organs invaded.

As to the question of treatment, standing as he does upon this basis, he believes that the principles laid down by Lister and his followers entirely cover the ground. With regard to precautionary measures, there is, in his opinion, absolutely nothing to be added to the rules given by Dr. Thomas. He suggests, however, especially with reference to cities that the purity of the air is a question which should be particularly inquired into.

Concerning means of actual treatment, he advises that the fever being septic, the first thing to do is to wash out the uterus. The vagina is also to be

kept clean by washing it out every three hours with carbolized water, using a two per cent. solution. Moreover, these washings, he finds, are of themselves, under certain circumstances, sufficient to reduce the temperature. If, however, they no not have the desired effect, he uses the wet pack, giving quinine and salicylic acid at the same time.

But, according to his experience, intra-uterine injections are oftentimes used, when in reality the sole lesion that is killing the patient exists in the cervix. Also, the stream of water, as it ordinarily flows from the interior of the uterus, is in many instances of insufficient weight to separate the closely applied surfaces, which are frequently in a sloughing condition. His rule, then, is to thoroughly inspect, by means of a Sims' speculum, the entire vaginal canal as far as the external os, and then draw down the cervix with the tenaculum, separate its edges, and if he finds that there is anything demanding attention he applies directly to the spot a strong solution of carbolic acid, or some other similar strong disinfectant. In fact, in many cases, this has been the only treatment he has found necessary to resort to.

With regard to the interior of the uterus, that is if he does not find the vagina or cervix in conditions which seem to be responsible for the disturbance,

the practice is recommended of introducing borated cotton upon an ordinary applicator, wet in a strong solution of carbolic acid, two per cent., into the uterine cavity, and thoroughly wipe it out. When remaining portions of the placenta or membranes are suspected within the interior of the organ, DR. POLK introduces the broad curette (Skene's), and removes whatever material may be found there.

DR. J. B. HUNTER is firmly convinced with regard to the propriety of washing out the uterus, as well as of the great difficulty of accomplishing it thoroughly. He does not believe that *any nurse* should be trusted to administer the intra-uterine injections. In the next place, he considers it highly important to disturb the patient as little as possible, and the operation, he finds, can be accomplished without moving her at all, if a bed-pan of large size is used and the patient permitted to lie on her back. Regarding the injecting tube, he does not approve of the use of the large sized Chamberlain tube recommended by Dr. Thomas, but prefers one of about half the calibre and half the length, and he has found it necessary to have the openings confined chiefly to the end of the tube. Furthermore, he finds that after a few injections have been administered the uterus contracts, so that it is difficult to pass a tube of large size into it. He then resorts to a smaller one, often

the silver tube of Dr. Lyman, or, what he frequently uses with more satisfaction, Knott's double catheter. In some cases, also, it may be necessary to dilate the canal before using the tube. A point which, in his estimation, is of special importance, is regularity in carrying out this plan of treatment—with thoroughness and gentleness, and without disturbing the patient.

Regarding the effect produced by the injections, he has found, very commonly, fear of shock and other bad results, but these have not at all been realized by him. Where the water employed is sufficiently warm, that is from 100° F. to 110° F., the danger of chill, he advises, is reduced to a minimum. Again, he cautions, when the water returns clear the physician is very apt to think he has made a mistake; but according to his experience, even though the water does come away clear, the temperature falls, showing the beneficial effects of the treatment.

Concerning the use of the coil as an antipyretic, DR. HUNTER does not regard it as proper in simple puerperal septicæmia. In puerperal peritonitis, however, he has the greatest possible confidence in it. The metal or Leiter's coil is preferred by him to the rubber coil, because he finds it more manageable and more easily kept clean.

DR. FORDYCE BARKER cautions against continuing

intra-uterine injections beyond a certain fixed point of time. Moreover, of late he has objected to their use unless specially called for. He considers the Chamberlain tube a most excellent instrument to be employed, but he has met with cases where this procedure has evidently been continued too long; for after the uterine sinuses have been blocked up by the formation of coagula, or the contraction of the uterine tissues, some of the channels have apparently been opened and the absorption of septic material followed, as proven by serious re-infection. Thus he has noticed that after using intra-uterine injections for one or two days, when the tube is withdrawn it has been found covered with little points of blood; in some cases, also, slight hæmorrhage has followed, while in others profuse bleeding has occurred. Therefore he advises against this possible danger in continuing the use of the tube for such a length of time that it becomes a source of traumatic injury to the internal uterine surface, and thus, also, a source of infection.

Under the title of *Puerperal Malarial Fever*, DR. BARKER describes a certain class of cases depending upon telluric influences and modified by the puerperal condition, which are not infrequently met with in puerperal women, more particularly in malarial regions. These cases are characterized by the oc-

currence, in a variable degree, of chills followed by rapid pulse and a rise of temperature and prostration greater than are usually met with at the commencement of other puerperal diseases. On the next day a remarkable remission takes place, but in from one to three days later another and generally less severe attack occurs. As a rule, also, these symptoms are attended by a premonitory condition of pain in the head and bones, and with loss of sleep and appetite.

The importance of distinguishing this disturbance from puerperal septicæmia, etc., cannot, he advises, be over estimated.

In the treatment of these cases, he has used quinine in large doses successfully, combined with potassium bromide to counteract the tendency to cerebral congestion. But more recently he prefers Warburg's tincture, and in those cases where the stomach can tolerate it he considers it much more effective and more speedy in producing the results desired, than the largest doses of quinine. This he prescribes in doses of ℥ss. every four hours, till the fever is entirely abated; it is then continued in gradually diminishing doses to ʒ ii-i., until convalescence is perfectly established. Should any symptoms or the least threatenings of recurrence, as shown by malaise, evanescent pains in different parts of the

body, headache, helplessness or loss of appetite, present themselves, he directs that the full dose be immediately resumed and that he be at once informed of the patient's condition. In some cases, also, he gives codeia in gr. i. doses, in conjunction with the quinine, to relieve the nervous irritation.

Of this class of cases, the following one from DR. BARKER'S experience may be mentioned, as exemplifying the plan of treatment described:

The patient, after a normal labor, was taken in the morning of the twenty-first day, (one of the latest periods of invasion he has met with, the shortest period being less than twenty-four hours after parturition) with a violent chill and pain in the head and bones, a temperature of 105–6°, pulse 125, and delirium. No local cause for this disturbance detected. Ordered quinine gr. xx. with codeia gr. i., and the dose to be repeated in the evening. On the following day the patient seemed perfectly well, and half the above amount was given. On the third day there was a recurrence of the chill, together with the rise in temperature, rapidity of the pulse and delirium. Quinine and codeia administered as before, with calomel gr. v. A violent hæmorrhage from the womb now occurred, almost causing collapse. Brandy and ammonia given, and a hot vaginal injection. During the next three

days quinine gr. xx. and codeia gr. i. were administered three times daily, together with the following:

℞. Tinct. ferri muriat. . . gtt. xxv.
Ext. ergotæ fl. (Squibb) . . gtt. xx.
Tinct. nucis vom. . . . gtt. xv.
Sig. Dose, three times a day.

The patient now improved, and nine days from the commencement of the attack was thoroughly convalescent.

DR. J. W. MCLANE advises that the condition of sepsis, as well as any further absorption of septic material, must be prevented, if possible, by irrigating the vagina with warm carbolized water, so that the lochial discharge may not be absorbed. If there is only a local lesion in the vagina, he would not wash out the uterus; not unless he suspects the presence of septic matter within the uterine cavity, when this is irrigated also. In practising intra-uterine injections, he advises, the nurse should not be trusted, but this operation should be performed by the physician himself; and a tube employed, the nozzle of which is perforated with a number of small openings. He also directs that everything used about the patient be thoroughly disinfected with a solution of carbolic acid.

For internal medication, he cautions, *never give veratrum viride; never bleed.* But give milk, alcohol

in large quantity, quinine, and digitalis if there is failure of the heart. *Keep the patient alive.* He mentions a case in which he administered a quart of brandy and a gallon of milk daily. As a rule, however, he begins with ℥ss. of brandy in milk every two hours, and gradually increases this amount to ℥i., or more, according to indications; the milk being given *ad lib.* For the reduction of temperature, quinine in doses of gr. xx. is often preferred by him; or salicylate of cinchonidia, on which DR. MCLANE has recently placed much reliance, and found very efficacious. Or salicylate of soda may be used for this purpose. If the stomach rebels and vomiting comes on, he endeavors to quiet it by hydrocyanic acid, and feeding on milk and lime-water in small quantities, until he is able to proceed as before. Together with this, when necessary, the stomach is afforded a *short* period of rest, by resorting to rectal enemata. Opium is also given, hypodermically, in small doses with much benefit.

DR. HENRY J. GARRIGUES adopts the following plan of treatment for the prevention of puerperal infection, and from which he has derived the most gratifying results. This method is employed by him not only in his service at the New York Maternity Hospital, but also, with certain exceptions (which will be mentioned), in his private practice.

He directs that the patient be first given an enema and a bath, after which her abdomen, genitals, buttocks, and thighs are carefully washed with a lukewarm solution of bichloride of mercury, 1 to 2000. At least two quarts of the same fluid are injected into the vagina, by means of a fountain syringe, consisting of a glass bucket, a rubber tube, and a straight glass tube, and in protracted labor these injections are repeated every three hours. The rubber sheet covering the bed is washed with an undiluted bichloride solution of 1 to 1000, immediately before delivery. In order to limit the danger of infection by vaginal examinations as much as possible, the nurse is instructed that these are not to be repeated more frequently than is absolutely essential.

At the beginning of a labor the hands, both of doctor and nurse, are washed in the solution of 1 to 1000, using soap and large, stiff nail-brushes. Besides this, the hands are held for a minute or more in the warm solution (1–2000), kept for that purpose in a particular basin at the side of the bed, every single time the genitals are touched; and no other lubricant is used than the fluid adherent to the fingers, except in operations in which the whole hand is to be carried into the genitals, or the forceps is to be employed. In such cases he uses glycerine with bichloride of mercury, 1 to 2000, which is pre-

ferred by him to the carbolized oil or vaseline heretofore in use, because it is found that the glycerine itself possesses antiseptic properties which are still further enhanced by the addition of the bichloride.

When the fœtus appears at the vulva, a piece of lint, soaked in the solution of 1–1000, is applied to it and kept there all the time, in order to prevent the surrounding air from being pumped into the vagina by the alternating progression and recession of the presenting part; and after the expulsion of the child the genitals are kept covered with a similar compress. The placenta is expressed by Credé's method, so that he need not introduce his fingers inside the rima pudendi; and if, in exceptional cases, it becomes necessary to do so, the vagina is washed out with the solution, 1–1000; otherwise not. Acting on the same principle, intra-uterine injections are only used by him when the hand or instruments have been introduced into the interior of the womb, or in the case of the birth of a macerated child. Furthermore, he never allows any part of the placenta or the membranes to remain in the womb. In this regard, he advises that with good antiseptic treatment the introduction of even the whole hand into that organ is of no account, compared with the danger of hæmorrhage and septicæmia by leaving any part of the secundines behind.

The intra-uterine injection is given immediately after the removal of the secundines. For this purpose a large amount of fluid is used (from two to six quarts), and it is taken so hot that the hand can just be held in it. For its administration, DR. GARRIGUES has had made a curved glass tube, fifteen inches long and a little over one-fourth of an inch wide, with a large opening at the end and eight side openings, all of which have well-rounded edges, and are placed in the last four inches of the tube. This instrument differs from Chamberlain's tube by its small calibre, its open end, and the great number of lateral holes. The small calibre he prefers because it enables him to use the same tube any time during the first two weeks, even after considerable contraction of the internal os has taken place. The opening at the end he considers necessary, in order to be sure of washing the fundus thoroughly, and the large number of side openings insure the same effect upon the side-walls of the uterus. Moreover, the perforated part of the tube being only four inches long, it is entirely within the internal os, which prevents a premature escape in the cervix.

Before the tube is introduced into the womb, the vagina is thoroughly washed out, and during the passage from the latter to the uterus, the bichloride solution (1–1000) is kept running so as to avoid the

introduction of any septic substance from the vagina to the womb, and insure the exclusion of air. When used immediately after confinement, the tube is introduced between two fingers held in the cervix. Later in the lying-in period, if symptoms of inflammation are developed, he places the patient on her back upon a table, and introduces Cusco's speculum, in order to be able to inspect every part of the vagina and the vaginal portion of the cervix, and be sure not to overlook any diphtheritic infiltration. A bed-pan is then passed under the patient, and the tube introduced through the speculum, after careful disinfection of the vagina. If no indication is found for intra-uterine treatment, the douche is only applied to the vagina.

After the expulsion of the secundines—to return to the supposed case of normal labor—the patient is washed with the bichloride solution (1–1000), and the vulva covered with a *dressing* consisting of (*a*) a piece of lint, six by eight inches, folded lengthwise, so as to be three inches wide; (*b*) outside of that a piece of oiled muslin, nine by four inches; (*c*) outside of that a large pad of oakum; and (*d*) the whole is fastened with four pins to the binder in front, and behind by means of a piece of muslin eighteen inches square, and folded diagonally so as to form a kind of boat, five inches in width, for the reception of the other pieces of the dressing.

DR. GARRIGUES *applies this dressing with the same care as he dresses a wound after a capital operation*, and renews it four times in the twenty-four hours. At the same time the parts nearest the genitals are washed with the bichloride solution (1–1000), and before each washing the nurse disinfects her hands as before labor. Any substance, such as cotton, lint, etc., brought in contact with the genitals, is beforehand thoroughly soaked in the disinfecting solution. No vaginal injections are given, except in the rare cases in which the lochia become offensive. Moreover, by the effective antiseptic treatment at the entrance, preventive injections become superfluous, and thus, he advises, one great source of infection is avoided.

The local effect of the dressing is to impart a whitish hue to the skin, a bright scarlet color to blood, and a yellow color to abraded surfaces. Mucous membranes lose somewhat of their slipperiness, and the lochia are kept uncommonly sweet by it. Very few patients, he finds, have complained of a little smarting, but in no case has there been any general symptoms attributable to the drug. Sometimes a nurse will complain of sore hands, but inunction with glycerine obviates that.

All linen coming from the sick room is immersed, for at least one hour, in the undiluted solution (1–1000).

Also, when the patient is convalescing the dressing is continued as long as she is kept in bed (ten or fifteen days).

The use of carbolic acid is restricted to the disinfection of metallic instruments, which is done with a five per cent. solution, all metals being corroded by the bichloride solution, and consequently weakening it.

As regards the effect of the described treatment, DR. GARRIGUES has found it simply wonderful and all that can be desired; but the same good results can only be obtained by the constant attention to all the details mentioned.

So far as the solution is concerned, the bichloride of mercury, he finds, presents great advantages over carbolic acid. First of all it is a much more reliable disinfectant; next, it is not only free from odor itself, but it is an excellent deodorizer; it affects the skin of the accoucheur and the nurse much less; and even from an economical standpoint, this new treatment is a great improvement.

In private practice the same treatment is used by him, with but a few slight modifications, namely: substituting cotton for oakum; using the common rubber fountain syringe, or even a Davidson's syringe, if the former is not at hand; and having the dressings renewed only three times a day. Also, instead

of the glass tube, which is easily broken in the obstetric bag, he uses a tin tube with a large opening at the end. This, he finds, has one advantage over the glass tube, in that its flexibility allows it to bend according to circumstances, and which he has found useful in cases of abortion. Metal instruments are indeed corroded by the bichloride, but in private practice, he advises, where instruments are not used so often, where they are less frequently exposed to contact with the septic matter, and where it is easier to disinfect them, this is of less importance than in a hospital.

Finally, although he is convinced that bichloride of mercury is in itself a better antiseptic than carbolic acid, yet DR. GARRIGUES attributes the success attending this treatment in a great measure to the dressing, by which means this drug is applied in such a way that no air gains access to the genitals, without passing through the disinfectant.

DR. W. GILL WYLIE'S views are essentially the same as those of Dr. Garrigues. He is thoroughly in favor of the use of antiseptics and employs them both in hospital and in private practice; for, he advises, it is well known that the most successful obstetricians have, occasionally at least, had cases of puerperal fever develop in their practice. He causes the vagina to be washed out with a solution of car-

bolic acid—usually 1 to 30—the body of the patient washed with the same solution, all the bed linen, two sets of blankets, and napkins to the number of thirty at least, all carbolized, and in only a single case has he seen any signs of septic fever (one in which he had used forceps in dry labor). Hereafter, however, he proposes to use the bichloride solution in place of carbolic acid. Special importance is also attached by him to *perfect drainage*, more particularly after abortion. This, he advises, can be secured by dilating the cervix, and, if necessary, a drainage tube should be inserted.

DR. A. S. HUNTER believes there is no question but that better results have been obtained since the adoption of antiseptics and careful attention to cleanliness, than were secured before special antiseptic measures were introduced. He is doubtful of any special service attending the use of the compress to be applied to the vulva, so highly recommended by Dr. Garrigues, as the rubber muslin is liable to get folded, so as to bring a waterproof surface against the vulva, and do more harm than good. Moreover, he believes it impossible to keep it in close position with the external genitals; and, besides, clots may be retained in the pad, and in that way the door opened for the entrance of germs. In private practice he rejects the use of the compress altogether,

and uses vaginal injections; and in cases of septicæmia, intra-uterine injections. In addition he directs that a napkin, partially saturated with carbolic acid, or bichloride solution, be laid against the external genitals.

In practising injections, DR. HUNTER prefers to use the Lyman silver tube, rather than the glass tube, and in his opinion Davidson's is more desirable than the fountain syringe.

DR. JOHN C. PETERS considers that there are two kinds of puerperal fever: first, that which is of septic origin; and second, the affection which does not depend upon sepsis. The remedies, also, he divides into two classes. Opium, calomel, carbolic acid, quinine, and camphor should not, he advises, be used in the septic form of the disease, for micrococci will live in these drugs. On the other hand, the mineral acids, such as sulphuric, nitric, muriatic, will destroy these organisms when used in very weak solutions, *e.g.*:

℞. Acid. sulphuric. fort. . . gtt. x.
Aquæ . . . . . ℥i.

M.

Of the above solution, he finds that gtt. xx. will kill the bacteria in ℥ii. of fluid. Or even the following has been found by him to destroy bacteria quicker than will carbolic acid:

℞. Acid. tartaric. . . . gr. v.
Aquæ . . . . . ℥ i.
M.

He also places especial value upon the bichloride of mercury and turpentine as germicides, the former of which will, he advises, kill the germs when used even of the strength of 1 to 20,000; but, of course, a much stronger solution can be used with safety. In this respect, DR. PETERS believes that the bichloride solution will prove a more successful germ destroyer, than any other agent which has been used.

UTERINE HÆMORRHAGES.

PLACENTA PRÆVIA.

DR. WM. T. LUSK advises that when a case of placenta prævia is met with, it is important, in the first place, to bear in mind that delivery cannot be accomplished without a previous dilatation of the cervix; and, second, that the cervix cannot dilate without causing a separation of the placenta; and, third, that this separation cannot take place without hæmorrhage. Therefore, the essential point to consider is, how can the hæmorrhage be controlled, and, at the same time, the cervix be dilated as rapidly as possible.

Where the existence of placenta prævia is recognized during the early months of pregnancy—that is to say, before the seventh month—if the labor is terminated within this period, the prognosis for the mother is favorable, and the dangers are next to nothing; but after the seventh month they increase

very rapidly. The prognosis for the child is always very doubtful.

If, when first seen, the patient is having a hæmorrhage, and, upon examination, a placenta prævia is discovered, and the patient is in the last months of pregnancy, in such cases, he advises, some of the text books recommend that the best plan of treatment is to put the patient on her back, keep her quiet in bed, and administer cool drinks and opium; apply ice to the vulva, etc., and then do nothing more but wait, letting the patient alone until labor-pains set in, when the physician should be on hand to render whatever assistance is necessary. This waiting plan is advocated for the sake of the child, and to allow time for overcoming the rigidity of the cervix; so, for these two reasons, the physician is recommended to temporize and let the woman go on to the end of pregnancy.

But DR. LUSK advises that certain reasons exist why this plan is not expedient, even in the interest of the child. If the hæmorrhage first comes on between the twenty-eighth and thirty-second week, the probability is that he has to deal with a placenta prævia centralis, and in his opinion the chances of saving the child's life, in a central implantation, are in any case too small to allow of the least consideration. The hæmorrhages, in such in-

stances, are apt to be repeated, and so, even if the child escapes one, it is likely to be killed by the second or third. Therefore there is, he believes, no excuse for temporizing here.

If, however, the hæmorrhage comes on after the thirty-second week, and if labor is induced and delivery then accomplished, the chances of saving the child's life will be better than by allowing the pregnancy to go on, when the mother and child will both be subjected to the danger of a profuse hæmorrhage coming on at some time when the physician is absent, and which may prove fatal before the proper assistance can be summoned.

For the safety of the mother, he advises that all experience is in favor of inducing premature labor, and the results of this treatment are much better than where pregnancy is allowed to go on until labor sets in spontaneously. In the latter case the mortality is from one-third to one-fifth. But out of seventy-four cases, where labor has been induced at the first appearance of hæmorrhage, the women have survived in seventy; sixteen died sooner or later, four during labor, and the rest in the week following. Forcible dilatation of the cervix was employed here.

The induction of premature labor, therefore, he considers advisable, if the diagnosis can be made out

clearly. And the case should not be permitted to go on, from fear of accident, for, he cautions, the great trouble is that if the waiting plan be adopted, hæmorrhage may come on, and the physician may not arrive until it is too late to save the patient; while if premature labor is immediately induced, he can stand by and watch the progress of the case from the beginning to the end.

But in case hæmorrhage does occur when the patient is seen, the plan of treatment resorted to by DR. LUSK is governed, in the first place, by whether the child is dead or alive; and further, by the extent of placental attachment, the length and condition of the cervix, the character of the pains, and the condition of the child, if alive.

In cases where the placenta is attached to the margin, or only to a slight extent over the cervix uteri —that is to say, a *marginal or partial form of placenta prævia*—if the cervix is found to be long, narrow, and undilated, he then introduces a tampon, well soaked in water, to which has been added carbolic acid and glycerine, and packs it very tightly into the vagina, so as to completely fill it up. For this purpose any soft material is used, but it is packed in so as to crowd the cervix well up against the placenta, and in this way excite labor-pains, when the blood is pressed out and coagulates between the

cervix and placenta, and so prevents further bleeding. Some prefer to use a rubber bag filled with cold water, but while he considers this a useful appliance, it is rarely seen in this country and would probably not be at hand when wanted. Or, in the absence of other material, he is often obliged to use old linen or cotton rags, such as can be found in the house. In any case, however, he keeps the tampon in the vagina so long as the cervix remains long and narrow; but as soon as it becomes sufficiently dilated to admit a Barnes' dilator, this is introduced. The latter, he finds, renders most excellent service, not only checking the hæmorrhage just as effectually as the vaginal tampon, but it also stimulates the uterus to contract, and dilates the cervix; thus accomplishing three desirable ends. When the cervix has so far dilated that the Barnes' bag no longer fills it well, he then injects more water, so as to enlarge it, repeating this as often as necessary. In this way he is able, in a large proportion of cases, to dilate the cervix in a very short time.

As the cervix dilates from above downward, by the time the external os has reached the size of the top of a wine-glass, the os internum is completely dilated, and, he mentions, it is said by some that extraction of the child may then be proceeded with. But Dr. LUSK has found that death occurs in a great many

cases from rupture of the uterus from forcible dilatation of the cervix; and so, in his estimation, it is best not to be in too great a hurry to deliver, but wait until the cervix is fully expanded throughout.

After dilating the cervix, the next thing to do, he advises, is to rupture the membranes, provided the head presents; after which the head descends, blocking up the lower uterine segment; and if the placenta is now detached, the head presses against the cervical walls and so checks the hæmorrhage. While the membranes are being ruptured, he finds it best to have an assistant use manual compression through the anterior abdominal wall, so as to push the head down into the lower orifice of the uterus.

In these cases he considers it proper to give ergot. In regard to this procedure, however, he advises that the induction of uterine contractions in placenta prævia by means of ergot, is exceedingly hard to obtain; but if they can be thus brought about, a great advantage is secured, so far as the safety of the mother is concerned; the safety of the child he does not consider here. Moreover, the inducing of uterine contractions is a very excellent way to check the hæmorrhage; therefore after the other indications of tamponing the vagina, introducing a Barnes' dilator, rupturing the membranes, and forcing the head down into the lower cervical orifice, have been carried out.

he does not hesitate to use ergot and allow the labor to go on. Should it not then follow a natural course, he resorts to the forceps and delivers.

If, however, after the rupture of the membranes, there is no descent of the head, and the pains are feeble and the hæmorrhage continues, he then delays no longer, but passes the hand up into the uterus, and seizing hold of an extremity, brings the child down, when the pressure of its body acts as a tampon and arrests the bleeding.

When a case of complete attachment of the placenta—a *placenta centralis*—presents itself, Dr. LUSK advises that there is not much opportunity for delay. If, upon examination, an extensive adhesion of the placenta about the os is discovered, he first introduces a finger and sweeps it around, detaching the placenta from the lower uterine segment; the uterus then retracts and the hæmorrhage ceases. After the placenta is expelled the uterus generally contracts, but before this the bleeding is apt to continue. He does not consider it best to introduce the whole hand so as to completely detach the placenta, but rather, after the cervix has begun to dilate, it is generally advisable to pass half or the whole of the hand into the vagina, insinuate two fingers between the cervix and the placenta, and strip off the latter to the extent of about two and one-half inches all around.

Of course, after this procedure, there will be some hæmorrhage from the torn vessels, but this, he finds, is kept within moderate limits by the reaction of the uterine walls; and this can be still further facilitated by introducing a Barnes' dilator, which not only stretches the cervix, but at the same time acts as a tampon, and also as a hæmostatic if filled with ice-water.

As soon as the cervix is dilated to a point where the whole hand can be introduced into the uterus, he passes it up between the placenta and the cervix, or, if this is impossible, directly through the body of the placenta, and, seizing the foot, delivers by the operation of turning. If the child happens to be in the transverse position, or with the head downward, he then employs an assistant to manipulate through the abdominal walls and push the child around until the breech and knees are brought as nearly in relation to the cervix uteri as possible; after which the membranes are ruptured, a knee seized, the extremity brought down, and the cervix thus tamponed with the child's body and further hæmorrhage arrested.

All the preliminary tamponing of the vagina and cervix, he cautions, presupposes that the membranes are yet intact, for otherwise this measure is of no use; as then an internal hæmorrhage into the uterine

cavity would follow, which would prove more speedily fatal than leaving the patient alone.

Again, he advises, when there is a partial placenta prævia, detach that portion covering the os, bring it down against the cervical wall, and then compress it between a Barnes' dilator and the cervix ; the pressure stops the bleeding from the open mouths of the vessels, and the case is thus converted into a placenta prævia laterata. After the cervix is dilated, proceed as before.

After the child is extracted, DR. LUSK next aims to prevent a return of the hæmorrhage. To accomplish this, he considers it best to have at hand some persulphate of iron and cotton in small swabs; and, if the bleeding continues, he introduces a speculum, and with a pair of forceps drags down the cervix and rubs the bleeding mouths of the vessels over with the above solution. Having checked the hæmorrhage, he next directs his attention to the dangers of septic poisoning. This, he finds, is very apt to occur at this period, for large soft plugs are liable to form in the mouths of the uterine vessels, and these, acting as sponges, soak up septic material from the decomposing lochia. This accident is guarded against by frequent douchings of the vagina with antiseptic fluids.

DR. J. W. MCLANE advises that the best thing

that can happen in placenta prævia is early abortion. The treatment adopted by him depends upon the peculiarities of the case. As a rule, however, he first ruptures the membranes, tearing the opening freely and near the edge of the placenta, and allows the liquor amnii to drain off. This, he advises, may cause contraction enough to stop the hæmorrhage, and nothing further may be needed. If this seems apparent, he then applies a *tight* abdominal bandage and waits for labor to come on; in the meantime watching the patient's pulse, for evidence of recovery from the shock. In certain cases he may tampon the cervix with a tent, but, he cautions, *do not tampon the vagina.*

For an astringent, he places most reliance upon gallic acid, giving it in large doses together with a little opium; but even this is found very uncertain at times. No further medication is employed by him at this period, and he particularly cautions against the use of cold.

Concerning the induction of premature labor, he considers it a question whether it is best to induce labor at the seventh month or not, unless positively necessary. At the eighth month, however, if the hæmorrhage is at all alarming, he does not try to continue the pregnancy, but ruptures the membranes at once. If the placenta covers the os,

he directs that the fingers be not pushed through it, but that it be peeled off on one side in order to reach the sac.

If the pains come at once, and the hæmorrhage is not very large, he advises that it is best to temporize, letting the patient alone for a time; or a sponge tent may be introduced; if, however, the hæmorrhage is very active, he strips off as much as possible of the placenta at once, and, if necessary, the forceps may be used as soon as the head is within reach. But if the labor is slow and the hæmorrhage large, his advice is to turn and deliver. After delivery of the child, should the bleeding still continue, the lower part of the uterus may be swabbed out with a solution of persulphate of iron.

Certain cases of hæmorrhage occur where the placenta is retained longer than it should be. This, he advises, can generally be prevented by letting the labor take its natural course after the birth of the head, instead of making forcible traction upon the body. Also by keeping up the compression on the abdomen, administering ergot, and avoiding traction on the cord. For active treatment, however, DR. McLANE endeavors to secure a good, firm condition of the uterus, so that it will not be loose and soft after the placenta is removed, and in a favorable con-

dition to bleed. He then winds the cord around a finger of the left hand, *not* to make traction, but merely to serve as a guide. The right hand is then passed into the uterus, the placenta peeled off and the whole contents of the uterus brought away. If the entire secundines cannot be removed, he advises that all that is possible should be taken away, and the remaining adherent portions broken up; taking care to avoid gouging the uterine walls with the fingers or nails.

DR. E. L. PARTRIDGE recommends early induction of labor. In his experience, the patient who is allowed to proceed with her pregnancy and to sustain the occasional alarming hæmorrhages, there comes a sense of uneasiness and mental disquietude. Her attendant cannot conceal the fact of danger, or quiet her fears, as can often be done in other equally alarming, but less apparent complications of pregnancy. Moreover, in the remedy offered, he shows definitely to the patient a plan of treatment for her relief which she can appreciate, which reassures her, and, for this reason, facilitates recovery.

For dilating the cervix he recommends Barnes' dilator very strongly. They press on the bleeding parts and by expanding above separate part of the placenta. Furthermore, they act so quickly that the physician need not leave, but can remain and

wait. No danger from septic poisoning arises. After labor has been induced, he believes that almost without exception, version is the safest method by which to effect delivery.

DR. H. E. CRAMPTON aims to remove the placenta from all its attachments if possible, endeavoring by every means to bring on efficient uterine contractions For this purpose, he advises, the best agent is without question the hand itself, but, if time permits, he considers ergot of marked value, either by the mouth, using Squibb's fluid extract, or better, the following hypodermically:

℞. Ergotine . . . . . gr. i.
Glycerinæ . . . .
Aquæ . . . . . āā ʒ ss.

M. Sig. For hypodermic injection.

He directs that delivery be accomplished as soon as possible, either by bringing down the feet, or, if the head presents, by forceps. Afterward, he treats the case on general principles, that is, as one suffering from the effects of hæmorrhage; enforcing the recumbent posture absolutely; administering tonics and nourishing foods, milk being in his opinion, one of the best.

Regarding the tampon, he places but little reliance upon it in placenta prævia, as hæmorrhage may go on behind it unnoticed, and the patient become dangerously weakened.

DR. C. C. LEE highly recommends the use of the tampon in these cases. In one instance, characterized by sudden and profuse hæmorrhage, he tamponed the vagina, and in three hours uterine pains came on, and the tampon, placenta, and child were expelled at once.

ACCIDENTAL HÆMORRHAGE.

In cases of accidental hæmorrhage, DR. WM. T. LUSK makes no difference in the treatment of the two forms, apparent and concealed, for he believes that in either case, the best plan of treatment is to introduce a Barnes' dilator. What he aims to accomplish is to induce uterine contractions, for, he advises, if the membranes are intact and the uterus is made to contract, the amount of hæmorrhage that can occur will be small. The danger, however, is that the blood will fill the relaxed uterus, or the space between it and the membranes, and so cause a bulging out of a part of its walls; but if the uterus is firmly contracted down upon the ovum, there will be but small space left for the blood to accumulate in. The contractions are induced by the Barnes' bag,

which at the same time aids in dilating the cervix, and, as soon as dilatation is completed and uterine contractions come on, the danger is nearly removed.

He now ruptures the membranes, introduces the hand into the uterine cavity, and catches hold of the child's feet. As extraction is performed, an assistant makes compression on the abdominal walls, and follows the uterus down, thus checking any hæmorrhage that might follow from the relaxation of the uterus. It is important, he advises, to avoid rupturing the membranes until the dilatation of the cervix is complete; otherwise the blood will continue to collect in the cavity of the uterus and the danger will be no less than before.

Where the hæmorrhage is apparent DR. J. W. MCLANE aims to insure uterine contractions. To accomplish this he ruptures the membranes, which, he advises, is generally all that is needed. If the bleeding continues, however, he dilates the cervix, if necessary, and completes the labor as soon as possible, securing uterine contractions by pressure and by the administration of ergot.

In cases of concealed hæmorrhage, he cautions that if the condition of the patient is not recognized early, she may bleed to death. He directs that the membranes be ruptured, the cervix dilated, and the child delivered at once by podalic version usually.

to hasten matters. Or, if the cervix is dilated sufficiently, and the head presents, he applies the forceps and delivers. A full dose of ergot, Squibb's being preferred, is also given hypodermically, and the uterus compressed through the abdominal wall, with the hand, for two hours. In addition, he applies hot bottles to the feet, elevates the foot of the bed, and administers hot brandy. In some cases, when necessary, ice is carried up into the uterus with the hand. Or, if this fails to arrest the hæmorrhage, he injects a solution of persulphate of iron, 1 to 3, taking care that the fluid may easily escape. When the bleeding has ceased, he gives opium, which, in his estimation, is now a better stimulant than alcohol.

In any case, however, DR. MCLANE advises, *do not apply cold* to the abdomen, for it only serves to increase the shock and drives the blood from the surface to the viscera, which, he cautions, is just what it is desirable to avoid.

POST PARTUM HÆMORRHAGE.

DR. P. F. MUNDE considers preventative means as really the important point in the consideration of

the treatment of this accident. The following rules are recommended by him, and, if carefully observed, he believes that a serious case of post-partum hæmorrhage would be rare.

I.—Always keep the supporting and compressing hand on the fundus uteri, from the moment the head appears at the vulva until the placenta has been expelled.

II.—Do not hasten the expulsion of the placenta too much, but by steady and gentle friction of the fundus, endeavor to secure its total spontaneous detachment; the occurrence of which can easily be detected, by the uniform, firm outline of the contracted uterus on palpation.

III.—Always watch the uterus by the hand, using gentle friction for at least an hour, at intervals, before leaving the patient.

IV.—Always give ergot by the mouth as soon as feasible after the birth of the child, and if the labor has been unusually tedious, or if chloroform has been given for an operation, give the ergot hypodermically, injecting it to the depth of an inch near the umbilicus. It is well, he advises, to have the hypodermic syringe ready filled for every labor.

V.—Always have hot water on hand.

VI.—Always make sure that the uterus contains no coagula.

Should hæmorrhage occur, every possible means at hand are resorted to, to check it. Thus he has found vinegar serviceable in many instances. Again, hot and cold water, friction and compression have been employed. In other cases, he has injected the solution of iron into the uterine cavity; or the tincture of iodine. In one case, he resorted to compression of the placental site, between the fist in utero and the hand outside, for more than two hours, before he dared withdraw his hand.

Especial attention is also directed by DR. MUNDE to those cases of hæmorrhage which come on from one or two days to several weeks after delivery. For treatment, in such instances, he highly recommends the method of injecting the pure tincture of iodine, to the amount of ℥ss., into the uterine cavity. In doing this, however, he employs a cylindrical speculum, through which the injection is made; using this as a means of saving the vagina and vulva from inevitable contact with the fluid, if the latter is simply injected into the uterus under the guidance of the finger. In conjunction with this, the internal administration of ergot and restoratives are also practiced.

For a protracted bloody lochial discharge, or a constant sanguineous oozing, he has, in a number of instances, used successfully the pure tincture of

iodine, applied to the uterine cavity about twice a week, on cotton wrapped applicators.

With reference to the application of the tampon after labor, he advises that it should never be done, unless the uterus is so contracted and constantly watched, that no internal hæmorrhage can take place. He applies the tampon temporarily, however, as a possible safeguard against external hæmorrhage, until the patient has had time to rally a little; and with the positive understanding that the fundus uteri shall be carefully watched until the tampon is removed.

DR. I. E. TAYLOR recommends the following methods of procedure as a means of preventing hæmorrhage, when from the previous history, etc., it may be expected. The first consists in delivering the head and shoulders as usual, and then retarding the delivery of the breech for a variable time, and briskly slapping the delivered portions, in order that the movements of the feet may excite the uterus to contract. In practicing the second, for the purpose of stopping post-partum hæmorrhage, after the delivery of the placenta he directs that the abdomen of the patient be exposed, and flagellated with a towel either wet or dry. By this latter means, he has obtained contraction of the uterus, when the hot and cold douche, as well as the hand had failed;

and in cases where hæmorrhage has occurred in previous labors, by the employment of this method perfect freedom from loss of blood was obtained.

After the uterus has contracted the usual treatment is employed. If the flooding depends upon retained placenta, it should be removed with the hand or curette; although he avoids, as much as possible, the introduction of the hand into the womb.

For the arrest of post-partum hæmorrhage, concerning the use of cold let fall suddenly from a height on the abdomen of the woman, he considers its effect too transient, and even after it has passed off the bleeding may be renewed. Hot water, he advises, is only useful where the placenta has been expelled; and valuable as it is, the great objection to it, in his estimation, is that it is not always at hand, and in the meantime fatal results may follow. Electricity he classes in the same category.

In regard to the administration of anæsthetics, DR. TAYLOR believes that anæsthesia tends to cause paresis of the womb, and thus increase the danger of hæmorrhage. Should, however, inertia seem to be coming on from exhaustion, he sometimes finds them useful by allowing the natural forces to recuperate.

DR. FORDYCE BARKER advises, with reference to the use of hot water in the treatment of post-partum hæmorrhage, although highly esteemed by some,

that in certain cases the delay of fifteen or twenty minutes for this agent to act, cannot be permitted without imminent risk of losing the patient's life. In one such instance he employed the gentle application of cotton, wet in Squibb's fluid extract of ergot, with service, and suggests that it may prove valuable in other cases of like nature.

Regarding the use of anæsthetics, and their tendency to increase the dangers of hæmorrhage, so commonly stated, he has rarely delivered a woman without the use of an anæsthetic, and never where there has been any considerable pain; and yet he states that he has never had a case of post-partum hæmorrhage in his own practice—although he has employed anæsthesia in several thousand cases—except in one instance in which this agent was not used. Also, he has attended patients who in previous labors had had their lives much endangered by post-partum hæmorrhage, and who were placed under his care for this very reason. The histories of these patients showed that their former deliveries had almost invariably been followed by extreme prostration, and, when labor was completed, they were in an exceedingly feeble condition; so much so, indeed, that their physicians had not dared to give chloroform, on account of the peculiar idiosyncrasy and the tendency to the occurrence of hæmor-

rhage—the very reason, DR. BARKER advises, for which it should be given.

Therefore, he believes that instead of the anæsthetic being the cause of the post-partum hæmorrhage, it is, in a large proportion of cases, the best of all measures for preventing it; as thereby the exhaustion and loss of nerve power, which in many cases is the cause of the hæmorrhage, is prevented. He always, however, exercises the utmost care to prevent the occurrence of this accident, by following up the uterus by manual pressure, and administering ergot immediately after the expulsion of the placenta for the purpose of securing firm uterine contraction.

Concerning the administration of ergot, he almost invariably gives it, in the treatment of puerperal women, during the first few days after labor, in those cases in which the patient is feeble and has a slow getting up, as it is called. And in his estimation, an immediate and one of the most valuable results in parturition which this drug can produce, is the aid which it gives in promoting and causing rapid and speedy involution; and, also, DR. BARKER finds, the effect which it has in combination with other drugs, such as iron and nux vomica, is especially valuable in cases where involution has been retarded on account of post-partum hæmorrhage.

DR. J. W. MCLANE believes that post-partum

hæmorrhage can be prevented more easily than any other kind, if the labor is properly and rightly managed; and, in his opinion, those physicians who meet with a great deal of it in their practice, are faulty in their management of the labor.

When this accident occurs, he advises that prompt and immediate action is required, and every means should be resorted to to stop the hæmorrhage and prevent its recurrence. He directs that the patient be laid upon her back, and near the edge of the bed. The foot of the bed is raised from twelve to eighteen inches, and, if thought necessary, Esmarch's bandage is applied to the limbs, from the toes upward. He considers it of importance, also, to see that the bladder is empty, as a full bladder diverts the nervous force to itself. Regarding compression of the aorta, this is recommended as an excellent procedure for temporary service.

The hand is then introduced, gently, into the cavity of the uterus, and all clots removed; the introduction of the hand also stimulates the uterus to contraction. Uterine pressure and friction are also resorted to, but without violence, and kept up for a time by gently kneading the uterus, with the endeavor to promote contraction of the organ. Ergot, cold, heat, alcohol, ether, etc., he finds, all appeal to the nervous system, and, through it, cause the uterus to

contract. But, in his estimation, although ergot may be given even now, yet it will probably not do much good, especially after severe hæmorrhage, as the nerves are apt to be paralyzed. He is doubtful whether cold ought to be employed or not. If used, however, he advises that it be done quickly, and if the uterus does not respond promptly, it should be stopped at once. When employing this agent, a piece of ice carried up into the cavity of the organ with the hand, and rubbed over the surface, or slapping the abdomen with a towel dipped in ice-water, are, in his opinion, the best methods of applying it. No cold drinks of any kind should be given.

If the introduction of the hand does not excite contraction and arrest the bleeding, DR. MCLANE next (or perhaps first, with reference to the use of cold) resorts to heat, which is greatly preferred by him, as it is stimulating, while cold is depressing. Hot water, of the temperature of 115° or 120°, is thrown with gentle force into the uterus with a Davidson's syringe. In doing this, however, it should not be injected any faster than it can flow out of the cervix by the side of nozzle of the syringe, otherwise it may pass through the Fallopian tubes. Stimulants are also administered at the same time; *hot* brandy, diluted, is given in small doses—a tea-

spoonful at a time, he advises, until the stomach gets used to it; or, should this cause vomiting, a syringeful of ether, or brandy, is given hypodermically. Opium, he cautions, should never be given to arrest the hæmorrhage; but after this has ceased, he then administers it in large doses.

Should the bleeding still continue, and all other means of stopping it fail, a solution of the persulphate of iron, largely diluted—ʒ iii. to ʒ xii–xv. of water—is injected into the cavity of the uterus. This procedure he considers a dangerous one, but where a fatal termination is imminent, he does not hesitate to resort to it, as success often attends its use. Before injecting, however, he first cleans out the uterus, removing all clots, etc., otherwise the iron solution will cause them to coagulate into a hard mass. Finally, and as a last resort, if the persulphate proves of no avail, he resorts to transfusion of blood.

So soon as the smart hæmorrhage has ceased, his endeavors are then directed to restoring the patient. Everything that has become wet or soiled is removed from the bed, so far as this can be accomplished without disturbing the woman. She is then wrapped in hot blankets, hot bottles are applied to the feet, ether administered hypodermically, and hot brandy and water given in small amounts, and continued until the patient rallies. When the reaction comes

on, with full, bounding pulse, intense headache, etc., he prescribes a saline, preferring the *fresh* acetate of ammonia. For this purpose, the following is almost invariably used, and highly recommended by him:

℞. Liq. ammon. acetat. . . ℥ ii.
Morphiæ sulphat. . . . gr. i.
M. Sig. Take one-fourth every two or three hours.

If there is much thirst, small pieces of ice are allowed. *Now*, a short while having elapsed, the administration of opium, gr. ii-iii., is considered by DR. MCLANE to be the best thing in the world. Then, after the patient has slept for one or two hours, or when she wakes, brandy and milk in small quantities, or milk and lime-water, ℥ i.–ii., is to be taken quite frequently. Positive directions are then given that the patient must not be permitted to move, or otherwise disturb herself, but must be kept absolutely quiet and at rest, for a period of ten days or longer.

DR. M. A. PALLEN calls attention to the importance of ascertaining the cause of the hæmorrhage. Where the uterus is inert from loss of blood, direct stimulation of the organ, as by electricity, he considers useless; so is flagellation, and the use of the hand. In such cases, he finds, if the cerebro-spinal centres can be stimulated, uterine contractions will follow; and

for this purpose he places most reliance upon amyl nitrite.

When the cause is faulty implantation of the placenta, residual force is wanting, and the uterus will not contract to flagellation; hence, he advises, hyperæmia of the cerebro-spinal centres must first be caused. If there is a retained placenta, while the rest of the organ will contract, yet at that point muscular structure is lacking from the spongy condition of the part; therefore he resorts to the use of hæmostatics and causes direct styptic thrombosis.

DR. W. M. POLK does not approve of the former practice of forcing the uterus back into the hollow of the sacrum, by means of heavy compresses and bandages, and continuing this for a week or ten days after labor, for the reason that such mechanical pressure gives rise to congestion of the organ, and is liable, sooner or later, to be followed by hæmorrhage.

Regarding the use of cold for arresting the bleeding, he has seen a great deal of prostration produced after the prolonged use of this agent, therefore hot water is much preferred by him. Water in which the hand can be placed and retained, is, in his estimation, not too hot for the uterus; this he considers a sufficient test for the temperature of the water.

HÆMORRHAGE FROM LACERATIONS.

In regard to hæmorrhage after delivery resulting from lacerations, DR. WM. T. LUSK finds that rupture of the genital canal, of greater or less extent, occurs in nearly every case of labor; but in some they are very decided, and require immediate attention.

Sometimes the hæmorrhage is from the vestibule. In these cases, he advises, the bleeding vessels cannot be taken up one by one and tied, but often injections of cold water, or applications of ice will check the flow. Concerning the use of the persulphate of iron, recommended by some as having good effect when applied here, he finds that this agent will not always stop the hæmorrhage, even after it has been in contact with the bleeding surface for an hour or two, for as soon as the cloth wet with it is removed, the bleeding starts afresh. In such cases, he considers it best simply to put in one or two deep sutures extending around the two sides of the laceration, and bring the bleeding points together; this will stop the hæmorrhage at once, and with very little pain.

When the hæmorrhage comes from the upper por-

tion of the vagina, he directs that the bleeding point be pulled down outside the vulva, a few stitches put in, and the edges brought together.

If laceration of the cervix is followed by much hæmorrhage, to check this he uses hot water injections, or puts in a cotton tampon soaked in solution of persulphate of iron, pressing it well up against the bleeding tissues of the cervix. But in case there is a good deal of irritation about the part, healing may be delayed and the wound in the cervix renders it liable to suck up infected materials, and so prove a source of danger. Therefore to arrest the hæmorrhage, DR. LUSK advises that it is always a good plan, at the time of the laceration, to take a pair of vulsellum forceps, and, while an assistant presses down the fundus of the uterus through the abdominal walls, draw the cervix down and sew up the wound, as the tissue is now patulous and easy to work upon.

NON-PUERPERAL HÆMORRHAGE.

DR. P. F. MUNDE directs especial attention to certain forms of hæmorrhage from the non-puerperal uterus, which he believes are less common and less

Concerning the treatment of post-partum hæmorrhage by hot water injections, it may be stated that this is very frequently employed both in hospital and in private practice, and has proved eminently satisfactory. It has, indeed, much to recommend it, for not only is it a powerful hæmostatic and excitant of uterine contraction, but it is also a general stimulant. And if used with ordinary care, it is not only harmless but beneficial, by thoroughly cleansing the uterus from clots, portions of membrane, etc., which may have been left in its cavity. It is not, however, found altogether to displace the use either of cold water or of the persulphate of iron, but rather to be applicable to a certain class of cases in which the former of those remedies is unsuitable, and the latter unnecessary.

The method usually employed of carrying out the practice is exceedingly simple. An ordinary syphon syringe is the only instrument actually required, although one with a long nozzle, especially constructed for vaginal and intra-uterine injections, is more frequently used. This is carried up to the fundus, and, with the usual precaution against injecting air and of securing a free return of the fluid, water is injected as hot as can be conveniently borne by the hand, *i. e.*, about 112° F., in a full stream into the cavity, continuing this until a good contraction is secured, and the water runs quite clear and colorless,

From the several experiences in the use of hot water, the following results have been obtained :

(*a*)—In cases of sudden and violent hæmorrhage in a strong and plethoric woman, it is better first to use cold.

(*b*)—Where, from the prolonged or injudicious use of cold, the patient is found shivering and depressed, the beneficial effect of hot water injections is rapid and remarkable.

(*c*)—In nervous, depressed, and anæmic women, hot water may at once be injected without previously using cold.

(*d*)—In cases of abortion where, from uterine inertia, the ovum, although separated from the uterine wall, is wholly or in part retained, the injection of hot water is generally followed by most satisfactory results.

(*e*)—Where the injection of the iron solution is considered necessary, previous injection of hot water clears the uterus of clots, etc., permitting the fluid to come directly into contact with the bleeding surface, and lessening the chance of septic absorption.

the speculum then withdrawn. These tampons are worn for thirty-six or forty-eight hours, and an injection of tepid water, with sulpho-carbolated zinc, ʒ i–ii., or plain sulphate of zinc, used twice daily for three days, after which the local treatment is again resorted to. He usually finds it necessary to repeat this application every three days until the erosion shows signs of healing, when a milder solution of silver nitrate, ʒ ss–℥ i., or gr. xx–℥ i., is employed, or the absence of improvement calls for a change of treatment.

In very obstinate cases, with chronic cervical catarrh, DR. MUNDE advises that it is essential to cure the latter (the cause of the erosion) first, which, however, is often a difficult matter. To accomplish this, he considers the removal of the hypertrophied endo-cervical glands and mucous membrane by the sharp curette, and the cauterization of the base with strong nitric acid, or the actual cautery, usually an indispensable preliminary to a successful treatment of the catarrh. Occasionally he has found it necessary to apply nitric acid, or pure chromic or pyroligneous acid, to the erosion, before a change for the better permits him to return to the milder astringents and iodoform.

In every case, however, he advises that it is well to notify the patient that the cure is certain, but that

the patient must persevere for several months, at least, or she will never recover.

In a few intractable cases he has found the negative pole of a galvanic battery, applied by means of a round button to the erosion, the positive sponge being placed over the abdomen, to produce a marked tendency to cicatrization. In one such instance he was about to try the last resort of grafting healthy mucous membrane upon the erosion (as practiced once by Dr. R. W. Amidon), but the galvanic current finally produced a cure. But should neither of these methods succeed, an unfailing remedy is, he advises, the paring of the erosion with scissors (as in Emmet's operation for laceration), and the union of the raw surfaces with sutures.

While the usual symptom of these erosions is the profuse mucous discharge, the menorrhagia and inter-menstrual oozing produced by them is by no means uncommon. It is his impression, however, that this latter symptom is not usually attributed to so simple a lesion as a superficial erosion of the cervix; therefore he believes the subject one of no little importance. DR. MUNDE also considers it important to remember that the bleeding surface may be merely the most superficial erosion, and that the so-called "granular degeneration of the cervix" is by no means necessary to produce menorrhagia; al-

though it is well known that the latter more aggravated form of cervical disease causes that result. The chief point, he advises, is that a profuse menstrual flow may often depend upon a lesion of the cervix, which is discoverable only by a speculum, and curable only by local applications; and that in severe cases it may be advisable to make such an examination, and use such treatment, even during the menstrual period itself.

The following case, from his practice, is given by DR. MUNDE:

CASE I.—Mrs. ——, aged forty-two, mother of one child, now in his twentieth year, had always been in fair health, although not very strong, until some two years ago, when she began to menstruate more profusely than ever before, but without pain or special inconvenience. Gradually, however, she began to experience pain in the left ovarian region, and in the fall of 1881 the menorrhagia became so profuse as to confine her to her bed for more than one month. Her physician, a gentleman very eminent in another specialty, treated her by ergot by the mouth, by rest, and on two occasions by tampons introduced through a cylindrical speculum. The hæmorrhage was arrested by this latter remedy, and the lady was assured by her physician that no doubt the next menstrual period would be normal,

if she would only remain quiet until it had passed. She therefore remained in bed, but, to her disappointment, the period appeared as profusely as before, with acute pain in the left ovarian region. When it had continued a week, the lady decided to consult a specialist, and discharging her former physician, who had not visited her for several weeks, sent for DR. MUNDE.

He found a nervous, anæmic woman, who plainly showed the effects of suffering and loss of blood. After obtaining the above history, he suspected that the menorrhagia was due to ovarian congestion, and as the lady was bleeding quite profusely, decided first to try the effects of ergot by the rectum and a blister over the left ovary, with dilute aromatic sulphuric acid, before making a vaginal examination. Suppositories were accordingly ordered by him, each containing gr. v. of Squibb's aqueous extract of ergot, three times daily, and, as required, other suppositories with gr. ii. of extract hyoscyamus and gr. ¼ of extract belladonna to relieve the ovarian pain (the lady asserted that she could positively not take opium). He assured her that the hæmorrhage would probably cease in a day or two, and that then he would make a vaginal examination and endeavor to ascertain the cause of the bleeding.

But, to his surprise, a week passed and still the

oozing continued, and the patient began to be alarmed, as her menstrual period had now lasted two weeks. An examination was accordingly determined on at once, and the uterus found anteverted, the vaginal pouch rather narrow (as though contracted by senile atrophy), and the left ovary decidedly enlarged and tender. The cervix had a peculiar soft, velvety feel, which induced him to make a specular examination, employing a Sims', and on wiping the cervix clean he at once discovered the source of the hæmorrhage in a flat superficial erosion of the size of a twenty-five cent piece on the anterior lip. He could positively determine that no blood issued from the os, and could see it oozing in drops from the erosion when it was wiped with cotton. He informed the lady of this fact, discontinued the ergot suppositories and the sulphuric acid, and at once brushed the cervix over with tincture of iodine (this being the only agent he had with him), and inserted a tampon with glycerite of tannin.

Two days later DR. MUNDE painted the erosion with a solution of nitrate of silver ʒ j. to ℥ j., and reapplied the tampons, and this treatment was continued for about six weeks, fifteen applications being made in all, six at her residence, the remainder in his office. After the first two treatments the hæmorrhage ceased entirely, and with it

the ovarian pain; in less than two weeks the patient was able to come to his office, and in two weeks more the erosion was healed, the subsequent applications being chiefly of iodoform and tannin (equal parts), blown on the cervix in order to toughen it still more. The menstrual period, which came on about one month after the treatment began, was perfectly normal in quantity and duration, and painless, and has so continued up to the present time, and the lady has gained more in strength and flesh than during many years past.

In this case DR. MUNDE thinks the erosion was due to the friction of the cervix against the contracted vaginal pouch; there certainly was no cervical catarrh or vaginal leucorrhœa.

DR. M. A. PALLEN has sometimes satisfactorily treated these cases of catarrhal hæmorrhage from the cervix, by the application of compound tincture of iodine, and introducing a tampon of cotton with a quill communicating with the cervical canal, so as to allow of free drainage if there is still any flow. This he repeats once daily for three days, after which injections of hot carbolized water are made, and to the surface from which the blood continues to ooze, the compound tincture of iodine is applied for several days, or a solution of silver nitrate. He also places the patient upon bovinus, a preparation of

beef-blood, which he considers a most valuable food in cases of prostration after hæmorrhage, in conjunction with peptone, quinine, cod-liver oil, wine, and a tonic treatment in general.

Hæmorrhage from laceration of the cervix unhealed or temporarily healed.—In these cases it is not the large lacerations which DR. MUNDE refers to, but those of minor degrees, in which the larger part of the everted surface has healed spontaneously, or been glazed over by astringents, frequently, however, leaving a small patch of hyperplastic papillæ or granulations just within the cervical canal. These granulations bleed readily on touch, during coition, and often from friction during walking.

The treatment which he employs is very simple, and consists in exploring the cervix thoroughly through any speculum of sufficient size, and with fine curved scissors snipping off these exuberant papillæ, or scraping them away with a sharp curette. Their base is then seared with strong nitric acid, and the usual astringent after-treatment pursued until the surface is completely healed. He cautions, however, that so long as the cervical canal gapes, a return of these granulations is not improbable. A permanent cure, therefore, is to be found only in restoring the integrity of the cervix by trachelorrhaphy.

Those lacerations, he finds, which have been apparently perfectly healed by caustics and astringents, or in which nature has repaired the rent so far as she could by glazing over the raw everted surfaces with a delicate cicatrix, not infrequently disappoint patients and physicians by causing the same annoying bloody oozings previously described as springing from eroded granulations. Here, he advises, the surface is perfectly smooth, the os small, and no cervical catarrh present; but scattered over the pale, dull pink surface of the everted lips, are seen several small dots or patches of a bright red color, which bleed on being touched or wiped with cotton. These are merely spots of cicatricial tissue, which have broken down, as such tissue is liable to do if exposed to friction or bruising. And that the epithelium has disappeared from these patches, is shown by their turning white when a solution of silver nitrate is applied to them, while the neighboring surface remains unchanged. These, he finds, are the cases which have been "cured" by those physicians who do not believe in the operation for laceration of the cervix.

The following case is mentioned by DR. MUNDE, because it illustrates so well the uselessness of palliative treatment for hæmorrhage depending upon cervical laceration:

CASE II.—A lady consulted him during the past autumn for a prolonged menstrual flow, saying that four years previously she was delivered of her only child, and from that time on had been under treatment. In the first place, the bloody lochia continued unusually long and were very profuse; then she suffered a great deal from leucorrhœa, and her menstrual period was prolonged from four and five to ten and twelve days. At regular intervals she would flow very profusely; but generally about a week before the expected return of the period, she would begin to ooze moderately, merely sufficient to soil her clothes and annoy her, until the regular flow came on.

She was under the treatment of a prominent gynæcologist of this city for three years, who, she says, cauterized the "ulcerated womb" frequently, giving her a great deal of pain, and after a few months of treatment she would improve, the menorrhagia and premenstrual oozing would cease, and treatment would be discontinued. But in a few months the same oozing would return, again to yield to treatment, and this rotation continued for about three years, when the lady decided to try a trip to Europe. She returned to this country last September, apparently well, but in November the old bloody discharge again preceded the menstrual flow, and the patient consulted DR. MUNDE.

He expected to find an erosion, but the finger detected a double laceration, and the speculum showed two everted lips glazed over, with six to ten raw, readily bleeding spots in them, varying in size from a pin's head to a pea. A sound passed into the uterus produced no bleeding. Thus the source of the stillicidium was evident, and the failure of the two prominent gynæcologists to effect a permanent cure. Neither of them had told the lady that her cervix was ulcerated. Of course he does not suppose that they failed to recognize the rent; but the New York gentleman, while a skilful and bold operator, had chosen to deny the necessity for the operation of trachelorraphy, and the German, it is presumed, retained the conservative ideas of his youth.

DR. MUNDE'S opinion was verified a week later, when the lady reappeared, the usual oozing having just begun. Exposing the cervix at once without touching it with the finger, the blood was seen oozing in drops from the eroded patches; none as yet came from the uterine canal. The remedy was obvious, viz., to heal the erosions (as had so often been done before), and then keep them healed by turning the everted cervical mucosa back within the cervical canal, and retaining it there by the operation of trachelorraphy.

Hæmorrhage from chronic sub-involution of the

uterus.—This condition, DR. MUNDE advises, is a very common result of abortions, of long, tedious labors, of instrumental labors, and of lacerations of the cervix. Such women, he finds, often bleed very profusely at their periods and require all the inter-menstrual time to recover from the loss. In the course of time, however, this recovery grows less and less complete, and the patient becomes thoroughly anæmic.

In treating these cases, he has found constitutional measures alone to give but slight benefit. Frequently ergot, diluted sulphuric acid, viscum album, etc., temporarily check the flow, especially if rest and ice are likewise employed. But in many such cases only the tight tamponade of the vagina, repeated day after day, succeeds in finally arresting the hæmorrhage. His method of treating these cases is to make applications of Churchill's tincture of iodine to the endometrium twice a week during the inter-menstrual period, taking care to make the application thorough, by repeating it at the same sitting until any oozing of blood, which may possibly occur, ceases. The usual hot water injections are also taken twice daily. These iodine applications, he advises, should be continued up to the very inception of the flow, and he has seldom failed to keep the hæmorrhage in bounds by this treatment He also gives the following pill:

℞. Ergotæ . . . . . gr. i.
Ferri sulph. . . . . gr. ii.
Strychniæ sulph. . . . gr. $\frac{1}{60}$.
M. Ft. pil. No. i.
Sig. To be taken thrice daily.

If, however, the flow should still be too profuse, he puts the patient to bed and after four or five days does not hesitate to check it by the iodine application and firm tamponade repeated daily until effectual. At the same time he gives rectal suppositories of ergot, gr. iii.–v. each, three times daily. In a few instances, he has found that the fluid extract of viscum album, in teaspoonful doses every two or three hours, has kept the flow in bounds.

It should be remembered, DR. MUNDE advises, that, as a rule, several months of the above treatment will be required to insure a permanent benefit or a perfect cure. But if proper precautions are observed as to rest for the remainder of the day, after an application has been made, and as to avoidance of exposure to cold, this treatment can usually be considered harmless.

In making these applications, cotton-wrapped hard rubber applicators are employed by him if the uterine canal is patulous (as it generally is in subinvolution and menorrhagia), or by the syringe applicator (the syringe being first filled with tincture of

iodine, the nozzle wrapped with cotton, and the fluid gently expressed into the cotton after the nozzle has been expressed into the fundus) if the canal is of moderate calibre. The usual protective tampons are then inserted for twenty-four hours. If the effect is to be a very decided one (as during the flow), he makes the application by the slide-applicator, slipping the saturated cotton off and leaving it in the uterus, to be removed by a twine attached to it with the vaginal tampons. When the uterine cavity is tamponed in this way, he advises, absolutely no hæmorrhage can take place. Moreover, it is in this variety of uterine hæmorrhage that he finds intra-uterine medication (of whatever character) the most beneficial.

Hæmorrhage from chronic hyperæmia of the uterus.—DR. MUNDE has noticed this variety of hæmorrhage chiefly in young unmarried, or married but nulliparous, women. In his experience ergot seems to exhibit but little or no influence over it, but the iodine applications above described (in hæmorrhage from chronic sub-involution) are invariably effectual.

In this form of hæmorrhage he has never had to practice them at other than the inter-menstrual time, and a few months of treatment have always cured the case.

He advises, however, that it should of course be

remembered that in some women profuse menstrual flow is physiological, and that then it should not be interfered with; but when the flow entails anæmia and debility, he directs that active treatment must be resorted to for its control.

Prolonged menstrual flow (hæmorrhage) from retention of blood by flexion or pinhole external os.—In treating these cases DR. MUNDE finds that an examination reveals one of two conditions: first, and most commonly, a small pinhole external os, with dilated cervical canal; and second, a retroflexion with normal uterine canal.

In the case of the narrow external os, the menstrual blood, which toward the close of the period exudes less rapidly, is prevented by the narrow orifice from escaping freely, coagulates in the cervical cavity, and is gradually expelled in gushes or coagula several days after the supposed complete cessation of the menses. The treatment consists in removing the obstacle to the free discharge of the blood, and making the whole of the uterine canal of equal width, when the menstrual blood will escape from the external os as it is poured out into the uterine cavity, and all discharge will cease as soon as no more blood is exuded. This, he advises, is best done by making a so-called crucial incision of the external os, dividing the mucous membrane covering the cervix

to the length of about one-fourth of an inch, and then trimming off each little flap with fine curved scissors, so as to make the external os funnel-shaped. Then, by stretching the uterine canal with divergent dilators, and, if thought advisable, swabbing it with tincture of iodine, the operation is complete. He then practices dilatation once a week for several weeks, or even several months. This he considers essential to prevent the orifice from contracting again, and the iodine applications are also repeated once or twice if there is a hæmorrhagic tendency in the endometrium.

In the case of retroflexion, DR. MUNDE advises that the last blood exuded evidently cannot force its way up and past the angle of flexion, and so accumulates in the uterine cavity. Therefore, by elevating the fundus uteri by a well-fitting pessary, and, in addition, straightening the canal by dilatation, he is able to render this retention of blood evidently impossible. Any chronic hyperæmia of the endometrium which may exist besides, he easily remedies by repeated applications of tincture of iodine.

DISEASES OF PREGNANCY.

Morning Sickness.—DR. J. W. MCLANE advises that in mild cases no medicine at all is needed. He directs that the patient remain in bed, in the morning, for an hour or two after waking; and while in bed to take some light food, alkaline in character, such as a wine-glass of milk and lime-water; or a light biscuit, or a small cup of coffee without milk, or cocoa. After this, she is allowed to rise, and will probably feel pretty well for the rest of the day.

Certain cases, however, require medicinal treatment. Constipation being very general in women, the bowels should be kept in a good condition. For this purpose, he advises, do not fear to give a laxative, such as rhubarb and soda, or hydrargyrum cum creta, or calomel; calomel is often preferred by him because it always acts, and brings the stomach and intestines in good relation; also, he uses a rather powerful laxative, for the smaller the dose that will have the desired effect, the better for the patient, on account of the irritable condition of the stomach.

For a sedative to the stomach, he prescribes cerium oxalate gr. iii., with a fraction of a grain of the solid extract of gentian; or dilute hydrocyanic acid m.i.–iss., with a drop or two of ipecac. Or, he frequently prefers the wine of ipecac in small doses every hour, which also acts as a tonic. Or, if these all fail, he often finds carbonic acid water very effectual. When there is not sufficient food retained for purposes of nutrition, and the patient is declining, he orders sparkling wines, especially the dryer wines. Sometimes, also, bismuth in doses of gr. iii. is found very serviceable, and if there is pain present he adds gr. $^1/_{24}$ of morphia. Where the pain is intense he usually applies a blister, and after taking it off sprinkles gr. $^1/_4$ of morphia over the spot. For blistering he uses spanish fly, but cautions that the fly is apt to be attacked by an insect, which extracts from it the active principle; therefore to make sure of its action before applying it he sprinkles a little acetum cantharides upon the blister.

Pregnant women, he advises, should walk and take considerable gentle exercise in the open air, for if shut up in the house the nausea will be worse. Carriage riding is very beneficial, but, in his opinion, by walking up to the hour of confinement the muscular power is developed, which will afterward prove of great service.

In very bad cases of vomiting, when all other means of checking it fail, DR. MCLANE advises that rectal alimentation be resorted to, before producing abortion. In practicing this method of nourishment, he directs that the rectum be washed out every time before each enema (three or four daily). For an enema he considers the following most excellent: beef-fea ℥ iv., one yolk of egg, brandy ʒ i., and tinct. opii deodor. gtt. x.; the latter to allay the irritation of the bowel. This, he finds, is very rapidly and easily absorbed. Or, milk and brandy may be used. As these cannot be vomited, he finds that if the patient does not lose flesh, and if she can bridge over this period, *i.e.*, until the uterus begins to ascend in the abdomen, she will generally progress favorably. If, however, this does not succeed, but the vomiting, fever, and emaciation still persist, he then introduces a uterine sound (the best means in his estimation) and induces abortion, when the symptoms immediately stop.

DR. W. GILL WYLIE believes that many cases of abortion and premature labor can be obviated that are caused by improper local treatment. Application can, he advises, be made to the cervical canal to the distance of three-fourths of an inch, and tepid vaginal injections can be used with safety during pregnancy.

Regarding dilatation of the cervix he thinks there might possibly be some hesitation with reference to this procedure as indicated by morning sickness, and he is not prepared to say that in every ordinary case dilatation of the cervical canal should be resorted to. Nevertheless, in his experience the most aggravated cases of puerperal nausea have yielded to this treatment, and he has found dilatation of the cervix for three-fourths of an inch perfectly successful, not only in affording relief to this symptom, but also in softening the hardened condition of the cervix so commonly associated with it. Therefore, when medicinal treatment has failed, he would not hesitate to adopt this measure as a dernier resort.

DR. H. J. GARRIGUES has used moderately astringent injections, vaginal and cervical, and made local applications of the tincture of iodine, carbolic acid, etc., without provoking abortion, and with apparent benefit to the patient. Concerning dilatation of the cervix, he does not think very favorably of this operation, and has never employed it.

In many instances where an incessant morning sickness is present, with possible diarrhœa, potassium bromide is found to afford excellent service, given thus:

℞. Potass. bromid. . . gr. xxv.
Aquæ . . . . . q. s.
M. Sig. This amount thrice daily.

Of this, the first dose is to be taken one-half hour before rising. After the first week or so the second and third doses may be omitted; the first dose given as above often proving sufficient to control the symptom.

Or, the following is a most excellent combination for this purpose:

℞. Cerii oxalat. . . gr. xxiv.
Ext. hyoscyami . . gr. xxxvi.
M. Ft. pil. No. xii.
Sig. Take one twice daily.

DR. FORDYCE BARKER places the greatest reliance upon the oxalate of cerium, giving it as follows:

℞. Cerii oxalat. . . . gr. lxxx.
Div. in capsules No. xx.
Sig. Take one every fourth hour.

Concerning this remedy, DR. BARKER advises that it is administered in doses so small as to be quite inefficient; but in the above manner, he has found it more frequently useful than any other drug.

Constipation.—DR. J. W. MCLANE calls attention to the fact that constipation is always carried over from the non-pregnant state; and the larger the uterus the greater the pressure and more violent the constipation. Also the intestines sometimes get blocked up by masses adhering to the sides, and in the rugæ, with a small passage in the center. This

may go on until it becomes so hard that it has to be removed by mechanical means. Therefore, he advises, it is easier to prevent than to cure chronic constipation; hence the patient must exercise great care over the bowels, or this condition will be sure to follow.

He insists upon the patient being regular in going to stool, having a certain exact time every day, which should be attended to without fail. He also endeavors to make the bowels move naturally, if possible, by excluding all highly seasoned food, very fine flour, and other constipating diet, and by giving Graham bread, oatmeal with cream or milk, laxative fruits, baked apples, prunes, etc. If this treatment does not answer, the constipation being due to lack of muscular power in the intestine, he irritates the bowel and increases the peristaltic action by means of strychnia; also giving saline waters, such as Hunyadi water, which is greatly preferred by him as the best laxative, Congress water being too weak, and the smaller the dose that will produce the desired effect the better. He also places great reliance upon the compound licorice powder of the Prussian pharmacopœia (now in U. S. P.). In any case, however, he cautions against giving oils of any kind in the constipation of pregnancy. The following laxative pill is almost always used by him and highly recommended:

℞. Saponis medicinal. . . gr. i.
Ext. belladonæ . . .
Aloes . . . . āā gr. ss.
M. Ft. pil. No. i.

Albuminuria.—DR. J. W. MC LANE considers albuminuria as properly a symptom, a condition, not a disease; although it must be treated as such. He believes that, as a rule, too little attention is paid to the examination of the urine, which should be regularly attended to, especially after the fourth month, once a week; and as soon as a trace of albumen is discovered, much oftener than this.

In treating these cases, his aim is to relieve the congested condition of the kidneys. He places the patient on a milk diet, using pure milk, as he believes that the system requires something for its proper nourishment. The quantity taken is usually about four quarts daily, by measure, a part being given regularly every hour. Regarding the use of skimmed milk for this purpose, he has tried it in several instances, but does not find that any more benefit is derived from it than from pure milk.

In mild cases, he directs that the patient wear a complete suit of flannel night and day, but not to sleep in the one worn in the daytime. Free daily dry-cupping over the loins is practiced, until the parts become quite reddened. Saline laxatives are also

administered, in order to make the bowels do the duty of the kidneys; of these he prefers the citrate of magnesia, giving a bottle at a dose. This, he finds, will diminish the albumen and increase the urine. He now endeavors to make the kidneys work by administering diuretics, giving the citrate, or the bitartrate, of potassium, either of which are freely taken; or the infusion of digitalis with potassium citrate may be used. This is continued for a week, allowing the patient to pass an abundance of water, after which period he substitutes for the above a mineral water, such as appollinaris, etc.; at the same time keeping a careful watch over the urine. The patient is also directed to take plenty of gentle exercise, going out of doors each day, avoiding colds, however, and excitement of all kinds; besides this, free ventilation is secured at night, and general hygienic treatment strictly enforced. If these measures are carefully observed, he advises, the patient may be carried through and the delivery accomplished satisfactorily.

In acute cases, however, with full, hard and quick pulse, plethora, marked œdema of the eyelids, severe nervous symptoms, and intense congestion of the face with threatening convulsions, DR. MC LANE immediately resorts to venesection, drawing from ℥ xii–xvi. of blood; after this he then proceeds with

the administration of diuretics and the usual treatment. Or, if the patient is chloro-anæmic, white, pasty, and anæmic over the entire body, his treatment, at first, is as usual; then when the urine is free from albumen he administers iron, preferring Blaud's pills, gr. v. three times daily, and increasing this amount to gr. x–xv. Or, in other cases, carbonate of iron in powder, one-half to one teaspoonful three times a day, is employed. Regarding the use of iron, although some object to it, believing that it causes harm to the ovum, in his experience no such effect has been noticed; on the contrary, the most satisfactory results have always obtained. Sometimes, he advises, it is better to combine it with potassium chlorate; or the iodide of iron may be given; or the iron carbonate may be continued with carbonate of potassium, with good effect.

Where, however, this plan of treatment is unsuccessful, and the albumen keeps on increasing in amount, he advises that abortion may be necessary. This procedure he would delay as long as possible, for the sake of the child, but if the albuminuria threatens the life of the mother he then induces abortion at once; therefore he advises, whenever there is any doubt, stop the pregnancy immediately, and the nearer to the eighth month the better.

Regarding the induction of premature labor, Dr.

MC LANE is a firm advocate of this measure (in cases of great albuminuria, even without symptoms of approaching eclampsia), as soon as the child is viable, and contends that this plan of treatment shows better results than that of procrastination, advocated by many. Moreover he considers it a mistake to wait, in these cases, for the development of symptoms before inducing labor; that it is better to put the patient out of danger at once. His indications for this resort (in a case of albuminuria), are a progressive increase in the quantity of albumen, a sudden fall in the specific gravity of the urine, and the presence of casts.

DR. WM. M. POLK advises that the presence of albumen in the urine is not a sufficient indication to induce premature labor, even though present in large quantity. As a rule, he finds that cases in which the urine contains fifty per cent. of albumen, with anæmia present, a good deal of anasarca, and violent headache, if at all persistent, are proper ones for the induction of labor, although the urine may be passed in fair quantity. If, however, the per cent. of albumen is not greater than fifty, with the amount of urine normal, and the symptoms mentioned are present, he believes that other treatment should be tried first.

Concerning the specific gravity of the urine,

finds that it is sometimes pretty high in spite of the fact that convulsions have occurred, or are imminent; but if a sudden fall in the specific gravity occurs, he looks upon this with much apprehension. He advises, however, that it is the presence of a group of symptoms, rather than of any one in particular, that indicates the propriety of bringing on premature labor.

With reference to anasarca, as an unfavorable symptom, he considers it as one among a group, not separately. He fears it most, however, because, when present, if convulsions occur, there is more likely to be œdema of the lungs. As for children born prematurely, but after the period of viability, DR. POLK believes that they stand less chance of living, and of withstanding the diseases of childhood, than those born at full term; notwithstanding the opinions of some to the contrary.

Functional disturbances.—For the *nervous cough*, which is often present, DR. J. W. MCLANE administers hydrocyanic acid (dilute) in doses of m. i–iss., mingled with a small quantity of chloroform; or sometimes chloral is used with good effect. He also deems it best to assure the patient of the purely reflex and sympathetic character of the affection, and that it will cause no harm. For *nervous dyspnœa*, with possibly attacks of syncope, he prescribes a few

When *salivation* is present he
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delivery. *Pruritus vulvæ* may
character, or caused by

In cases where general *dropsy* of the parts occurs, sometimes extending into the thighs, without albuminuria, DR. MCLANE administers diuretics, using citrate of potassium, and applies flannel with infusion of digitalis to the abdomen; or spongio-piline may be used instead. At the same time the bowels are kept free and made to move every day. If *general anasarca* is present, iron is given in the forms already mentioned; either Blancard's or Blaud's pills, or the carbonate in ʒ i. doses. The teeth are apt to decay during pregnancy, causing *neuralgia and headache*, and due to an acrid dyspepsia. In these cases, he advises, if the patient is of an extremely sensitive nature and highly organized, the pulling of a tooth may cause abortion; otherwise it may be extracted. When possible, however, temporary filling of soft amalgam may be used. But usually a facial neuralgia is present without carious teeth; in such cases he gives quinine in doses of gr. xv–xx., and advises that no harm (tending to cause abortion) results from this procedure. It is cautioned, however, that it is first necessary, when headache is present, to ascertain if there is also albuminuria; otherwise he uses quinine. *Hemiplegia or paraplegia*, when present, is generally due to some renal lesion, and as a rule cannot be cured without sacrifice of the child. Therefore, when this is found with albuminuria, he con-

siders it best to induce labor at once; this may limit the paralysis which otherwise might last a lifetime. *Chorea* in pregnancy is, he finds, most apt to occur in those who have had it in early life, usually in primipara, and generally causes miscarriage. For treatment he gives chloral at night, as a hypnotic, and in the morning administers arsenious acid in doses of gr. $^1/_{50}$. If within a month the treatment is unsuccessful, he then induces abortion, when the symptoms soon disappear. If *irritability of the bladder* exists during the first months, as it frequently does in nervous women, this is not of much importance; a little bromide of potassium is given to quiet the nerves. But during the latter months, when the uterus grows and presses upon the bladder, much irritation is caused. In such cases, if the patient has a pendulous belly, he uses an abdominal (many-tailed muslin) bandage with great benefit. *Incontinence of urine* is also seen in the early and latter months. In the former no consequence is attached to it; a little potassium bromide proving of service. During the latter, however, it is far more serious, being generally caused by a misplaced uterus. In these cases, if the child is lying in the oblique position, he draws the uterus up in its place and retains it there with a bandage, when the bladder will fall into its normal position. *Varicose veins* are treated by the elastic stocking, or roller bandage.

THE PUERPERAL STATE AND ITS MANAGEMENT.

Concerning the use of anæsthetics in labor, DR. WM. T. LUSK employs chloroform constantly as a means of lessening suffering. He cautions, however, that deep anæsthesia—that is to say, complete abolition of consciousness—in certain cases weakens uterine action, and may suspend it altogether. Also, even when given in the usual obstetric manner, it may so far weaken the contractile power of the uterus, as to necessitate the resort to ergot or the forceps.

In considering the more important conditions existing after the completion of labor, DR. LUSK advises that the mother, after her confinement, as a rule, experiences a general sense of comfort and a desire to sleep. Though all the conditions are favorable for blood poisoning now, yet he finds that a chill following a few moments after delivery is rarely of any considerable importance; it is generally due to a rapid evaporation and loss of heat from the surface of the skin, which has become bathed in perspiration

during labor. But nature takes precautions against a further loss of heat by contracting the surface capillaries, and hence causing an increased flow of blood to, and a congestion of, the internal organs, and so the blood becomes warmed and the chill disappears. When this chill occurs he considers it of no prognostic signification, and all that is necessary to do is to give the patient a warm drink and keep her well covered up.

In this regard he also believes it to be of importance to remember what are the physiological limits of temperature after the birth of the child, so that no unnecessary alarm may arise. The temperature regularly rises in the first twelve hours after delivery, from a degree to a degree and a half, within physiological limits. But in health the temperature of the human body is higher in the afternoon, reaching its maximum at about five P. M., but it falls in the morning, and reaches its lowest point between eleven P. M. and one A. M. Therefore if a woman is confined in the morning, the usual rise of temperature from a degree to a degree and a half in the first twelve hours, added to the normal afternoon rise, may cause the mercury to run up to 102° or over. While if she is confined in the afternoon, the normal fall coming between eleven and one coincides with the natural post-partum elevation of temperature,

and these so nearly counterbalance each other that the thermometer may show only half a degree above normal. Moreover, within the first three or four days the temperature is frequently very unsteady, and from some slight mental disturbance it may go up to 103° or over, and this is of some importance if it stays there; but if it soon falls again, no uneasiness need be felt concerning it.

When attending a patient in confinement DR. LUSK advises that the first thing to do after washing the baby is to see that the mother has a good sleep. Most of them are disposed to go to sleep after the exhaustion of the labor, but they are often prevented because all the family and all the servants want to come in and see the baby. But he either prevents this proceeding or shortens it as much as possible, and insists on emptying the room of all visitors within an hour or so, and then allows no one to come in, or in any way disturb the patient until she has finished her sleep. Also, if too much is constantly going on about her this natural desire to go to sleep disappears, and then she becomes nervous and restless. Where a patient is confined who has already had a number of children, this natural sleep is sometimes interfered with by the occurrence of after pains. In such cases, when he departs he leaves $^1/_6$ to $^1/_4$ gr. morphia, and tells the nurse to

give it to the patient if she does not soon go to sleep. The morphia does not interfere with the uterine contractions but only allays the pain and so induces sleep. If the patient feels weak after awakening, he may give her a little hot bouillon or hot tea, and sometimes she will find this very refreshing. But he never permits any solid food or ice cream and such things, as they would probably be undigested and cause colic.

Before leaving the patient he directs that all causes of excitement be excluded, the room darkened, and an abundance of fresh air admitted. Then after the lapse of ten or twelve hours he returns to see if she has passed her water. The desire to make water is, he finds, rarely marked, and the woman will not attempt to pass it unless told. So he directs the nurse to put the bed pan under her after he has departed, but considers it best at the same time to go back and see if the water has been passed, because it is sometimes hard for the patient to compress her bladder, and she finds that she can not urinate while lying on her back. If she is set up, however, she can pass it without difficulty. But he does not think this is a very safe expedient, for the patient should be kept strictly on her back for four or five days, because it cannot be certain whether the thrombi which now fill the uterine

sinuses are hard or soft, and if by a sudden motion of the patient one of them should get loose and pass into the circulation, she might speedily die. So DR. LUSK advises that it is best to keep her on her back, and then if she does not pass her urine voluntarily he draws it off with a catheter. In doing this, however, he cautions that the lochial discharge rapidly undergoes decomposition and after the third day the odor of it can be detected, and if any of this is carried up into the bladder on the catheter it will be likely to set up a cystitis, so he is always careful to first wash off the vulva and thoroughly carbolize the catheter before introducing it.

The question next arises as to what the patient can have to eat, and, he advises, much nonsense has been written and spoken on this subject. It used to be the practice to give her nothing but slops, but then later it was said that this was all nonsense, and there was no reason why she should not eat all the solid substances she wanted. Normally, however, he finds that the woman usually has no appetite after the first two hours after confinement, at which time she is very hungry, but this hunger soon entirely disappears. He thinks it well to remember not to starve her, for then there will be little or no milk in her breasts for the baby's food; but give her gruel and milk in abundance if she bears them

well. Some patients say that they cannot take milk, as it makes them bilious and heavy; but he tells such patients that there is nothing peculiar in a woman after confinement to render her bilious from taking milk. In addition to these, beef broths, bouillon, and soups from which the fat has been removed, toast, and such easily digested articles of diet, should be the chief food of the patient for the first two or three days. He has never seen a patient take beef steak voluntarily within the first three days, unless it was forced on her; for he advises during this period the stomach does not digest such things very well, as the meat excites a catarrh of the stomach, and indigestion, flatulence, and colic are the result, and relief can only be obtained by a hypodermic of morphine. But after three or four days the appetite returns, and then the woman can eat almost anything. On the third day he causes the bowels to move, after which the appetite is generally good, and she can eat easily digested food, such as steak and chops, bread, oranges and ice cream, etc. Nurses, he finds, are always in the habit of prohibiting fish; and while he has little faith in it, yet fish does seem difficult to digest at this time, and so he considers it just as well not to use it.

Some patients, DR. LUSK notices, will ask if they

can have their hair dressed. There are many women, he finds, who think that combing the hair after delivery is a cause of puerperal fever, and if a patient contracts this disease and it is found that the physician had ordered her hair combed they will seem to hold him responsible. But there is no reason why the patient should not have her hair dressed if she desires it, while if she objects to having it done it is best to omit it.

He also directs that the room be not too warm and the patient not too thinly covered, for there is a profuse perspiration which is normal after confinement; but at the same time he sees that she is not imprudent, and that she does not get her feet out of bed and catch cold.

The plan of giving a purge on the third day he considers a good one, and it has been the custom to do so from time immemorial, although some believe it is the worst thing that can be done. On the contrary, DR. LUSK thinks there is very good reason for giving it, because there are very few women who go through the latter part of pregnancy without a large fæcal accumulation, and a purge will often bring away more than a chamberful of fæces; and this accumulation if not removed is likely to cause inflammatory troubles and dyspepsia. Women, he finds, differ very much in their sensitiveness to laxa-

tives. Some will do well with a simple soap suds injection, or a drink of Hunyadi water in the morning, or one or two blue pills in the evening, and this is often all that is necessary. But when the bowels are very sluggish, he uses the pill Dr. Barker introduced, and considers it a very efficient one.

℞.	Ext. colocynth. co. . .	gr. v.
	Ext. hyoscyami . . .	
	Hydrarg. chlorid. mit. . .	āā. gr. ii.
	Ext. nucis vom. . . .	gr. i.

M. Rub up and divide in pills No. ii.

This he finds often brings away an enormous discharge, and affords great relief.

Dr. R. Tauszky asks, concerning the means of securing the best possible condition after parturition, why is it that almost every woman as soon as she becomes a mother begins to suffer from some form of pelvic disease? In support of the words "almost every woman," he refers to the very large percentage of gynæcological cases in which the morbid condition present could be traced directly to childbirth, and then asks the significant question, By what means can the occurrence of these conditions be prevented? To the influence of the old term "meddlesome midwifery" he believes that a part of the explanation can be traced, but he regards meddlesome midwifery, scientifically applied, as one of the most effectual

means of preventing the conditions under consideration. Hygienic and antiseptic midwifery under intelligent direction, even though it be subjected to the term "meddlesome," should, he believes, be practised in every case of normal labor. Although at the present time it is so practised by most surgeons, it is not, unfortunately, carried out to an equal extent by obstetricians. How is this method to be carried out in cases of normal labor? First of all, he advises, the accoucheur should be careful to cleanse his hands with soap and water, remove all foreign particles from beneath the nails, and then wash the hands in either a three per cent. solution of carbolic acid, or, what is probably more available, pure vinegar, and afterward oil the hands with carbolized oil of the same strength of carbolic acid mentioned. All instruments and articles used about the woman should be cleansed and disinfected by similar means. Just prior to confinement, or early in the first stage of labor, the bowels should be freely moved by an enema, repeated if necessary. The bladder should be emptied, and if catheterization is necessary the urine should be drawn with a soft Nélaton catheter which has been thoroughly cleansed in boiling water and afterward disinfected. The vulva should be bathed with some antiseptic solution, such as a very weak solution of carbolic acid, per-

haps with the addition of a small quantity of glycerine, or with a solution of thymol.

DR. TAUSZKY also recommends careful dilatation of the cervix with the fingers; and speaks of the advantage which might accrue from gently pushing up the anterior lip of the cervix above the symphysis. Tough membranes also may be ruptured with great advantage. He recommends the use of chloroform, especially in primiparæ, not carrying the anæsthetic, however, to the production of full unconsciousness. The forceps in very many cases, if judiciously used, are, he believes, of advantage, rather than disadvantageous, and should be used rather than allow the head or shoulders to press unduly, for any considerable length of time, upon the perineum.

Moreover, the cord should not be tied until the umbilical vessels cease to beat. Dr. TAUSZKY regards this as a point of practical importance. He also advises Crede's method of expression of the placenta. Furthermore, the genital passages should be carefully examined after the removal of the placenta, and all slight lacerations or wounds should be closed, the same rules adopted as in the treatment of wounds of soft parts elsewhere, and they should be carefully covered with some antiseptic dressing, such as the application of iodoform, etc. He also recommends the use of the abdominal binder. It is also

claimed by him that the child should be applied to the breast at the earliest moment, believing that the material which it derives in this way from the mother is more beneficial to it than any article which can be administered; and at the same time it is beneficial to the mother in exciting or maintaining uterine contraction. In multiparæ he recommends the administration of a drachm of ergot after the delivery of the placenta; but he believes that ergot in a normal labor should never be given before the expulsion of the child. According to his experience after-pains, when the case is managed according to the plan outlined above, scarcely ever occurred. Should they occur, of course they should be controlled by the use of anodynes.

In the management of the puerperal condition, he advises, careful disinfection should be strictly observed. The thermometer should be used twice daily in the axilla. The breasts and the nipples should receive careful attention. For excoriated nipples, he uses the following application:

℞.	Balsam. peru. . . .	grm. iv.
	Olei amygdal. . . .	grm. vj.
	Aquæ rosæ . . .	grm. xxxv.
	Mucil. acac. . . .	grm. vj.

Apply after each nursing, the nipples being carefully cleansed.

DR. TAUSZKY lays special stress upon the occurrence of hæmorrhage after parturition, and believes that a little hæmorrhage after parturition is very dangerous, and should be arrested. He takes the strong position that the accoucheur be regarded as guilty of malpractice, who would permit a slight quantity of blood to escape from the genital organs of a woman for days after parturition. He maintains also that not a single drop of blood should appear after the completion of the third stage of labor; that the napkins when removed should be perfectly free from color; that should they be colored the physician should at once institute an examination with reference to the source from whence the blood came, and set about arresting it.

The bowels, he advises, need not be moved until the third day after labor. It is not necessary, and is often dangerous, is even fatal sometimes, to use intra-uterine carbolized injections once or twice daily up to the second day, even after natural labor. He believes that such injections should be used only when the lochia are offensive, and febrile movement has developed. When the lochia are offensive and there is some fever present he invariably syringes the vagina several times a day with a disinfectant solution, but intra-uterine injections post-partum he considers necessary only in cases of internal violence,

such as sometimes attends the manual separation of the placenta or the use of the forceps. When such injections are used, he prefers thymol or simple water to carbolized water, which can be introduced either through a soft catheter, or the exceedingly convenient tube invented by Dr. Chamberlain. The injections may be repeated until the fetor of the lochia is either markedly diminished or entirely corrected.

DR. TAUSZKY protests against the teachings of Dr. Goodell, of Philadelphia, with reference to the parturient woman being permitted to assume the upright position within three days after labor. He believes that the doctrine is a dangerous one, and unwarranted, and maintains that the recumbent posture should be kept, changing occasionally from side to side, for at least eight days after normal delivery, and especially until the uterus has returned to the pelvic cavity. He also refers to his own experience on the frontier, while in the army, and states that it is not only among the civilized, but also among the savages, that women suffer from diseases peculiar to their sex, and that gynæcological affections among the squaws are not at all uncommon. A large percentage of these conditions is attributed by him to early rising after parturition.

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believes to be indicated after delivery of the placenta. With regard to the application of ice to the abdomen and intra-uterine injections, the necessity for their use usually arises at about the same time during the puerperal state; that is, upon the rise of temperature, which is usually accompanied with a fetid lochial discharge. Under these circumstances he finds that nothing produces more satisfactory results sometimes than the use of intra-uterine injections.

DR. BURRALL also emphasizes the point of examining the patient at the end of the third or fourth week after delivery before she is discharged, with reference to possible lacerations of the soft parts or of the cervix, which occurred during labor and had been overlooked. He also favors the use of the binder for two or three weeks after confinement, and objects to the patient assuming the upright position within a few days after labor, more especially in those cases where the pelvic organs are weak and need support.

DR. F. P. FOSTER is confirmed in his opinion, which he has long held regarding the dangers of vaginal injections when used in the ordinary way, whether of hot or cold water, or in whatever position of the patient. He also has no faith in the theory that safety is to be obtained by dispensing with the terminal orifice in the tube. He has met with a number

of cases in which hot injections gave discomfort, either by producing pain or reflex disturbances, but he has not seen inflammatory trouble produced by them.

Entrance of water into the uterus he regards as one of the least of the dangers from vaginal injections. Evil results, he advises, are seldom due to the direct entrance of the stream into the uterine cavity. For in the first place, the cases are not common in which the axis of the uterus coincides with that of the vagina, and at the same time there is such an amount of patulousness to the orifice of the cervix that it would be an easy matter to introduce the nozzle of a syringe into the uterus. What he believes to happen is this: The muscular and other structures about the terminal portion of the vagina are, in some instances, easily excited to spasmodic action, as the result of the injection, and the orifice contracts spasmodically upon the nozzle. The pain experienced is, he finds, caused by the stretching of obscure adhesions in the parametrium by this dilatation of the vagina. And in a great many cases, perhaps a majority, the vagina still contains a considerable quantity of water after the nozzle has been removed, without reference to the posture of the patient, and it is kept there by the spasmodic muscular closure of the vagina. It is with this idea

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Regarding the view held by Dr. Foster concerning the spasmodic excitation of the muscular and other structures of the vagina, and the presence of adhesions, DR. MUNDE considers this quite ingenious, but only theoretical, for he does not believe that adhesions are present so frequently, when they cannot be felt, as the theory demands. In 119 out of 700 women who had had children he has found the os sufficiently patulous to allow a stream to be thrown directly into the cervical cavity, and, in many of them, through the internal os. That fluid is retained in the vagina he believes unquestionable, but he does not think the vaginal orifice contracts to retain

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ployed, but more especially in the early inflammatory stages. Both the pain and the hyperæmia are lessened by the use of cold. At first, however, the applications must be repeated very frequently. Then after the fever has disappeared, warm baths or sitz baths can be resorted to, but he believes that the use of warm injections for peritonitis are dangerous.

DR. W. M. CHAMBERLAIN believes that the first and most important element in the care of puerperal cases is the observance of scrupulous cleanliness. With regard to intra-vaginal irrigation for anti-febrile purposes, and the use of the cold coil to the abdomen, he does not consider it probably so strikingly efficient as is Kibbee's cot, but its use is so simple and so efficacious that it can be adopted with very great and positive advantages in all cases where Kibbee's cot could not be made available. The idea of intra-vaginal cooling is also suggested by him, but he has not as yet practised it. He believes, however, that the plan is legitimate, and possibly a very valuable extension of the same method.

Concerning intra-uterine injections, he believes that if employed upon every lying-in woman they would very likely prove mischievous, and the practice is an unwarranted interference, which nothing but a septic condition of the uterus justifies. Also, the existence of septicæmia is not, in his opinion,

an indication for washing out the uterus, unless the cause can be located within its cavity; it may be an indication for washing out the vagina, but not the uterus.

As to peritonitis, DR. CHAMBERLAIN has met with two cases in which he has seen peritonitis follow promptly upon the use of vaginal injections of water at a temperature of 104° F. On these occasions, moreover, there was no evidence whatever in either case that the uterus had been injected; and in one instance this was impossible, because of the degree of stenosis of the cervical canal. To avoid this accident, therefore, he always requires the patient to take the precaution to receive the injection whilst in the sitting posture, and to use a tube without a terminal opening, and with a reverse current. In the cases referred to, he believes the result was due directly to the effect produced by the hot water on the inflamed tissues.

In all cases, however, DR. CHAMBERLAIN advises that care be taken to leave no fluid remaining in the cavity of the pelvis. To accomplish this purpose, he has invariably found it necessary to depress the perineum after washing out the vagina, otherwise the cavity of the pelvis is left full of fluid, and the advantage to be derived from the use of injections in the puerperal state is thus lost.

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Regarding the view held by Dr. Foster concerning the spasmodic excitation of the muscular and other structures of the vagina, and the presence of adhesions, DR. MUNDE considers this quite ingenious, but only theoretical, for he does not believe that adhesions are present so frequently, when they cannot be felt, as the theory demands. In 119 out of 700 women who had had children he has found the os sufficiently patulous to allow a stream to be thrown directly into the cervical cavity, and, in many of them, through the internal os. That fluid is retained in the vagina he believes unquestionable, but he does not think the vaginal orifice contracts to retain

any such quantity when the patient is either standing or sitting, as when lying down. And he especially objects to the theory that injections from a fountain syringe, employed in the usual manner, produce such a degree of distension as is claimed by some.

DR. FORDYCE BARKER advises that it is most desirable to have formulated if possible, and perfectly fixed, certain rules governing the use of ergot in practice. This, he advises, should also be the case with reference to all measures to be used in that class of cases in which it is required to act promptly and most decidedly; but at the same time there is difficulty in laying down positive rules which may not have exceptions that are most important. He believes it is agreed that ergot should never be administered in advanced parturition under certain circumstances; that it should never be used to induce uterine contraction in the first stages of labor; that it should never be used except in vertex presentations; that it should never be used where there is the slightest disproportion between the fœtus and the passages of the mother; that it should never be used unless the soft parts are perfectly prepared for dilatation; that it should never be used unless all mechanical conditions are such that if sufficient [illegible] are present the fœtus will be expelled [illegible] thin half an hour.

All these principles are fixed, at the present day, among obstetricians. But when it is stated and laid down as an absolute rule, that ergot should never be given for purposes of exciting uterine contraction in labor, he thinks it is going a little further than should be deemed wise. It is exceedingly rare that he gives ergot for the purpose of expelling the fœtus, and yet there are some exceptions where, in his opinion, it can be administered with great advantage. He often meets with patients in whom labor is retarded by morbid sensitiveness to pain, and often, under the moderate use of anæsthetics, labor is assisted by calling into play all the accessory muscles which are under the control of the voluntary powers of the patient. But now and then patients are seen who are so sensitive to pain that they resist, by the voluntary action of their muscles, that progress of labor to a very great degree, and instead of bringing the voluntary muscles to the aid of labor, so soon as pain approaches, they shrink from it; and occasionally, after a certain time has elapsed, and a very great degree of suffering has been endured—perhaps they have been in labor some hours without accomplishing anything—the labor ceases, not on account of the lack of uterine power or muscular efforts, but because the nerve forces of the woman have become exhausted.

Now, in these cases, DR. BARKER has found ergot, whenever this point has been reached, and there is no mechanical obstruction or improper condition of the soft parts, to be a drug of very great service. He then puts the patient under the influence of an anæsthetic, administering chloroform in very minute doses until he overcomes the morbid sensibility to suffering, and then he gives free doses of ergot to stimulate the uterus to action, and all the accessory muscles soon come into play, and the labor is usually quickly and successfully terminated. If, however, there is any delay, then he applies the forceps, because, he advises, the conditions implied in the statement which has already been made, show that there is no danger in the use of the instrument.

Certainly, therefore, he should hesitate about laying down positive rules concerning the use of ergot in the second stage of labor.

Some have expressed the opinion that the use of ergot favors after-pains. and contributes greatly to the suffering of the patient. Upon this point he states that he habitually gives ergot after the birth of the child, but it is not chiefly for the purpose of preventing hæmorrhage, for if the danger of this be imminent, he would not wait for the action of ergot. He therefore gives ergot, not expecting that it will

prevent hæmorrhage, but for the purpose of the subsequent effect of the drug. It is extremely rare now that he has patients suffer from after-pains sufficiently severe to prevent them from sleeping, and he ascribes the effect to the attempt at securing fixed contraction of the uterus, and for this purpose ergot assists in preventing relaxation. The fixed, contracted condition of the uterus, therefore, which he aims to procure, is due partly to the ergot and partly to the other means employed; and when these effects are completely obtained, any effusion of blood into the cavity of the uterus is prevented, and in that way the occurrence of after-pains is avoided.

Furthermore, in DR. BARKER'S estimation, an immediate and valuable result from the use of ergot in parturition is, its promoting rapid and speedy involution; and, also, the effect which this drug has, in combination with other drugs, such as iron and nux vomica, in cases in which involution has been retarded on account of post-partum hæmorrhages or from local causes. He thinks one of the most valuable effects which the drug can produce is the aid which it gives in causing involution, and he almost invariably administers it in the treatment of the puerperal woman during the first few days after labor, in those cases in which the woman is feeble and has a slow getting up, as it is called; and he

has found ergot, combined with stimulants, iron, and strychnia, especially valuable.

DR. J. W. MCLANE directs especial attention to the careful treatment of the third stage of labor, the proper manipulation of the abdomen, the expulsion of clots, etc., with the view of preventing the occurrence of septicæmia during the puerperal month.

After labor has been accomplished he advises that the attending physician should remain with the patient until after the birth of the placenta, or for an hour after the delivery of the child; or if the pulse is about eighty, he would stay for a longer period. The patient should also be visited again in six hours. Regarding the administration of opium after labor, he does not practice this as a matter of routine; but in those cases where the nervous system is very much shocked, as by the use of forceps or other operations, opium is given as required. The bladder should be attended to, and as some women are unable to empty it for thirty-six or forty-eight hours, the patient should be instructed to make an effort to do so while the physician waits. If she does not succeed, then a catheter should be passed. The condition of the lochial discharge is also to be inquired into. This should be of a very bright red at first, and after some days turning to a watery-green

discharge. It should not be offensive, nor flow in a stream, but be all soaked up by the napkin.

The diet of the patient he considers of great importance, the blood being in a very poor condition, which is rendered still more impure by the fatty degeneration of the uterus. In about an hour after delivery he advises that a bowl of rich broth (chicken or mutton, etc.) be given, after which the patient will generally fall asleep. This plan of feeding is then kept up for a day or two, when solid food is usually called for and may be allowed now. There should be a passage from the bowels by the third day, but should this not occur he prescribes a mild laxative. For this purpose the compound pills of rhubarb, or the citrate of magnesia are much preferred by him; castor oil he considers too harsh. As a rule, however, there is generally not much in the intestinal canal, and an enema of soap and water is often all that he finds necessary; but the injection needs to be in sufficiently large quantity to distend the gut—a pint or more. The temperature should be taken at each visit. At this time it should be about 97°; if above 98° DR. MCLANE looks upon it with suspicion.

As soon as the patient has gotten over the immediate fatigue of labor, he directs that the child be put to the breast and allowed to suck out the colos-

trum, which is meant as a purgative. This procedure he finds will also facilitate the contraction of the uterus. After this the child is not applied to the breast again until the secretion of milk, when it should be allowed to suck every two hours, except during the night, for a month; it should be fed, however, once or twice throughout the night, but not allowed to sleep with the mother. The patient is made to remain in bed until all traces of sanguineous discharge have ceased, generally about ten days. Also, as it usually takes two months for the uterus to undergo complete involution, he directs that she should not move around with much freedom for a month. Involution is more rapid, he advises, if the mother nurses the child.

Injection of the vagina is rarely considered necessary by him, and often does much harm by the fluid getting into the peritoneal cavity. When employed, he prefers a fountain syringe, objecting to Davidson's, or one with a nozzle which throws the fluid from the cervix. A one per cent. solution of carbolic acid is used, and a small quantity of the same solution is sprinkled upon the napkin each time it is applied. If the lochial discharge is too scanty DR. MCLANE advises that warm applications over the abdomen will often increase them. But should the bloody discharge continue too long, he gives gallic acid, or,

what he considers better, quiniæ sulph., gr. x. and ext. ergot. fl. gtt. lx., in two doses each day. If the discharge comes on afresh after the patient is up and about, he directs that she go back to bed and remain there until it ceases.

LACERATION OF THE PERINEUM.

Regarding this accident, DR. P. F. MUNDE believes that the whole secret of preventing laceration of the perineum lies in retarding the passage of the child through the vulvo-vaginal orifice too rapidly, by which act the soft tissues will have time to stretch rather than tear. This he accomplishes either by the use of the forceps or by the fingers. The longer, he advises, the head can be made to rest upon the perineum until it is thoroughly distended, the child's head gradually dilating it bit by bit, and gradually allowing the head to slip slowly along, the better it is for the perineum. The usual method employed by him is to put the patient upon the side (generally the left), draw up the knees, put two fingers into the rectum, and, as soon as it can be reached, into the mouth or above the chin of the child, manipulate the head gradually, endeavoring to keep it back during the pains, and between the pains endeavoring to extend it. If too hasty in this manipulation, he cautions, a brow presentation may be made, but if ten or fifteen minutes are consumed, a perineum may be

saved which otherwise would be ruptured. This he also accomplishes by the forceps.

With reference to operative procedures, he would always perform the immediate operation. So far as the use of serrefines are concerned, he has no doubt but that the perineal wound heals while the parts are held in apposition by this means. He has seen it occur in his own practice, and also while in Vienna. In a recent case which is mentioned by him, a young primiparous woman had her perineum torn. Serrefines were applied, and, to his surprise, a few days afterward he found the perineum perfectly united through and through. The laceration was two-thirds down to the anus.

DR. MUNDE has an objection, however, to serrefines, which makes them entirely unfit for general use; namely, they slip. And, in his experience, when the skin is firm and tense, as it is in primiparous cases, difficulty will be found in getting the instrument to hold, and if it slips, only a skin union usually takes place, which is not what is desired.

DR. H. J. GARRIGUES believes, concerning the obstetric treatment of the perineum, that there are a large number of lacerations, deep enough to indicate artificial union, but not considerable enough to necessitate a proceeding that causes so much pain, takes so much time, and gives rise to so much talk,

as the application of sutures. In these cases he makes use of serrefines, and is perfectly satisfied with the results obtained. When he has done washing the parts, and whilst the patient is still on her left side, he lifts up the lips of the wound with the thumb and index finger of the left hand, and applies serrefines with the same fingers of the right hand, one to three in number, according to the length of the rent.

The one that comes nearest to the anus is first applied, about one-third to one-half of an inch in front of the posterior angle. The following are put on, progressing towards the posterior commissure, leaving the same distance between each two. The foremost should be placed at the commissure itself. They are put on at right angles, and pushed in as deeply as the length of the legs will allow. Before applying them, however, the wound is carefully cleansed with carbolized water. Very seldom does he find it necessary to twist an artery or cut off some loose shreds of tissue, and the pain is quite insignificant and momentary. The serrefines are usually left in place four days, their removal again causing very slight pain. When they have been removed the sides of the rent appear lifted up in a ridge, which subsides, within a fortnight, and in the places where the clamps have set are found minute ulcera-

tions which heal readily. The instrument recommended by him never cuts through in the time indicated.

With the serrefine Dr. GARRIGUES uses exactly the same treatment as with the suture, *i. e.*, a towel around the knees, daily mild aperient, and vaginal injections with carbolized water. The catheter is only used if the patient cannot make water herself, and she is permitted to lie alternately on her back and on her sides. In regard to this method he finds it impossible to indicate theoretically precisely what cases are fit for the treatment with serrefines. First of all, he would exclude all those in which the rent extends into the anus; and even if the anal ring has not burst, he does not think those are proper cases where the rent is high, for it is evident that the clamps can exercise their power but little beyond the surface included within their grasp. He has also met with cases in which it was impossible to fix them; and more especially is this so in fat women with hard, unyielding tissues. It becomes impossible to raise the necessary fold, or the deeper layers are withdrawn from the grasp of the clamps, so that they only hold the skin. But, even after all these subtractions, he finds that there remain a large number of cases in which they work admirably, nay, even a larger number than those requiring suture.

In those cases, however, that are not fit for serre-fines, *sutures* are employed.

As often some time passes before the expulsion of the placenta, and as, at least, in his experience, hæmorrhage is apt to occur after it has come away, when chloroform has been used, he stops the administration of the anæsthetic in the meantime. Then, after all the hæmorrhage has been checked, he again puts the patient under the influence of chloroform, unless she be so weak that the risk would be too great.

For operating he finds it most convenient to have the patient lying on a table, in the lithotomy position. Or, if desirable, she may remain in her bed, being turned so as to bring the buttocks towards the edge of the bed, and placing her feet on two chairs. The latter way, he advises, is preferable when the patient is very much exhausted ; but it is more fatiguing for the operator, who is obliged to kneel down during the whole procedure. Skilled assistance is, of course, very desirable, but by no means indispensable; two persons of common intellect, generally the husband and nurse, will do. The accoucheur himself puts the patient under the influence of chloroform, but afterwards the assistant, standing on [illegible] right side of the patient, keeps up the narcosis, [illegible] the direction of the physician. Each assist-

ant holds one knee, bent and carried outwards with his arm, and the one placed at the left side of the patient separates the lips of the wound, while the operator inserts the index finger of the left hand into the rectum. The instruments are placed on a small table at his right hand, or, if the operation is performed in bed, a chair is employed.

The wound is then carefully cleansed by removing clots with a pair of forceps, cutting off loose shreds with curved scissors, and douching the vagina with hot carbolized water (1 per cent.). A sponge or cotton tampon, with a string attached to it in order to be able to remove it easily after the operation, is introduced above the rent, thus preventing the blood from trickling down over the wound from the uterus. Baker Brown's needles, that is to say, long curved needles with an eye near the point, and fastened in a wooden handle, are indeed convenient, but they make an unnecessarily large hole; moreover, they cannot be used when the laceration extends high up into the vagina, or implicates the rectum to any extent; and finally, he considers it as an instrument more to carry about, which has only a limited applicability, while common needles may be used in most parts of the body, and for the most different purposes. He also calls attention to Dr. Emmet and his school, who use round, straight needles, and al

though DR. GARRIGUES has no personal experience with them, yet he is convinced, from seeing them used by the master himself and by others, that they are introduced with much more difficulty than the old-fashioned curved ones, with cutting edges. Therefore, while admitting that they may be preferable in other operations, he does not think they are necessary in the one now under consideration.

Concerning the material used for sewing, this he considers not of great account; like most operators, silver wire is preferred by him. If sutures have to be introduced from the rectum, soft materials are preferable, because they do not irritate the intestine, and need not be removed. But, he advises, if only vaginal and perineal sutures are used, consequently always in incomplete lacerations, silver has great advantages; it is easier to twist it than to tie the other materials; it gives support to the lax tissues; keeps torn surfaces well adjusted, and does not absorb fluids.

In introducing them, the silver wires, about eight inches long, are bent under a short angle at one end, so as form a kind of hook, by which they are fastened to the silk or thread, threaded into the needle. Both ends of the thread are then passed through the eye of the needle and tied with the remaining part of the thread in a half knot, just behind

the head. Dr. Emmet's suture-twister, Dr. Sims's shield, and Dr. Thomas's stretcher will, he admits, be appreciated by everybody who tries them, but they are not indispensable. The wires may simply be crossed and twisted with the fingers. All the wires are passed, however, before this procedure is begun, but he finds it convenient to twist the two ends of each wire slightly together immediately after it has been passed, in order to ascertain, without delay, which ends belong to one another.

DR. GARRIGUES also cautions that beginners are always apt to make their suture too tight, the result of which is that they cut through in a few days. To avoid this he directs that the two raw surfaces ought just to be brought into contact, and very slightly pressed together. Applied in this way, the sutures will indeed always cut somewhat, but not cut through. He has adopted Dr. Emmet's excellent way of leaving the twisted wires long enough to unite them all in one bundle, in front of the vulva, and hold it together by a small piece of rubber tubing, one of the wires being bent back around the rubber band, so as to prevent it from slipping off. He then leaves the sutures in place one week; after which they are to be withdrawn, the wire being cut as near as possible to the mucous membrane on one side, with sharp-pointed scissors, and the twisted part

drawn toward the same side. Thus the newly united surfaces are strained the least.

He mentions that a recent author recommends inserting the wires fully an inch from the central line or raphe. In his opinion, however, this seems to be too far, as the adaptation of the edges of the wound will be less accurate. He passes the sutures only a centimetre (less than half an inch) from the edges, and as the needle has, as a rule, to be carried behind the whole torn surface, the wire becomes entirely imbedded in the tissue. (The only exception from this rule is Simon's triangular suture.) Again, he advises, the number of sutures should not be too restricted, as this has a great influence on the result. Since he uses serrefines for smaller rents, he rarely applies less than five sutures, and when the laceration extends high up in the vagina, even if the rectum is not implicated, eight may be necessary. If the rent extends some way up in the vagina, separate vaginal sutures are first passed, beginning at the upper end and going down to the perineal body, which then is treated in the usual way.

When the rent goes right through into the rectum, and extends high up, a row of sutures are first passed into the rectum, from the upper end of the rent down to the anus. Here silk or catgut is preferred by him, and the sutures ought not to be very deep.

Next, silver sutures are passed into the vagina in a row reaching down to the skin. Finally, a few superficial silver sutures are passed into the perineum. This disposition, he advises, is Simon's so-called triangular suture, an improvement on Dieffenbach's original method. The advantage of Simon's method is, that all the traction goes in the direction of the vagina, and thus there is less likelihood of the formation of a recto-vaginal fistula just above the perineal body, where it is often found, and probably due to the traction exercised by the thick perineal body with its deep sutures.

The chief thing, he advises, to bear in mind in perineorrhaphy is, that it is a plastic operation, that we want the surface and edges to grow together by the first intention, and that to this end they must be brought into proper contact with one another.

DR. GARRIGUES directs that the sutures must, therefore, be passed symmetrically, and if the regular deep wire sutures described do not entirely adjust the edges, a superficial silk one may be added between two of the others.

It must be understood, however, that he does not use serrefines in all instances. All he claims for them is that there are a great number of cases in which rupture occurs, and in which spontaneous union will not take place, and yet the vent is hardly

sufficient to require the use of sutures. In these cases he recommends them. He has, of course, found cases where they could not be applied, and for the most part, they were those in which the tissues of the perineum, the skin, subcutaneous fat and muscles were firm and thick. In such instances he has been unable to lift up that fold of tissue over which the instrument is to be attached, and has also found, in exceptional cases in which the fold of tissue can be raised, that only the skin is seized by the serrefines. In his experience, however, in the majority of cases where the rupture occurs, say one-half the length of the perineum, the instrument mentioned can be applied, and will hold, and give union, not only of the skin, but of the entire torn surface; and, he advises, it is only in cases in which the serrefines can be applied to the entire extent of the torn surface, that they are applicable so as to serve a useful purpose. He does not apply them to the vaginal mucous membrane, as they would be very likely to slip.

When the sewing is finished the knees are firmly tied together with a towel; moreover, it is not necessary, he advises, to keep the patient all the time on her side, for if the knees are bandaged, the parts are not stretched when the patient lies on her back, and with regard to the proper involution of the uterus,

he considers it preferable that she should be alternately on either side and on the back. In the latter position, also, she feels more comfortable when a round pillow is introduced under her knees. All movements, he directs, are to be executed very slowly and with the help of a nurse. Every morning and evening the vagina is injected with luke-warm carbolized water (1%), until it returns perfectly pure, and the external parts are cleansed with the same fluid.

DR. GARRIGUES finds that most women who have sustained a laceration of the perineum are unable to urinate. Commonly he considers it enough to empty the bladder with the catheter twice a day, but he advises, it is much more convenient for all parties if the patient can make water herself; and there is no reason why she should not be permitted to do so, for fresh urine has not the least bad influence on wounds, as demonstrated by Simon. The only precaution he uses is, to let her make water immediately before the injections, and to give an extra one if she urinates at other times in the twenty-four hours. Thus all stagnation and decomposition which would interfere with the healing of the wound are prevented.

Also, he finds it much better for the general health that the patient should have her bowels moved every

day, than to be kept constipated during the first fortnight of her puerperal. This aperient method allows her to take abundant nourishing food, while most of those who favor the constipating method keep her on very low diet. The generous food, he advises, is not only desirable to counteract the general debility incident to child-bearing, but has a direct influence on the healing of the wound. Moreover, the danger of the agglutination giving way when at last the bowels are permitted to move, is avoided. This point is worthy of remembrance, for DR. GARRIGUES has seen the sphincter torn under such circumstances, and others have reported cases in which the whole rent was re-established, for even if emollient enemas are used, it may happen that scybala as large as a fist are expelled. In his opinion, castor oil is preferable to any other aperient after perineorrhaphy, ʒ ii. every morning being generally sufficient. Or, if the oil cannot be borne, he prescribes Hunyadi Janos ℥ ii. to ℥ iv. in the morning, or a heaping teaspoonful of the compound licorice powder in the evening. In his opinion laxatives are preferable to enemas, as recommended by others, especially if there are rectal sutures, since the nozzle of the syringe may interfere with the sutures.

Finally, DR. GARRIGUES advises, if from some cause or other, the wound has not been united imme-

diately, it is still possible to make it heal by the application of sutures or serrefines. But in this kind of cases he finds that the granulations must first be made to bleed by scraping or scarifying the granulating surface, or by pressing a sponge against it. If however, the period of granulation has also passed, then the case no longer belongs to obstetrics.

In cases of rupture of the perineum DR. T. GAILLARD THOMAS advises that the proper course to pursue is, as a rule, early closure of the wound as a preventive of septicæmia and remotely of other evils. If the operation is attended with success, it is evidently a great gain ; and even if it fails there is no harm done.

After devoting many years to the study of this subject, DR. T. A. EMMET finally believes that simple laceration of the perineum, extending even through to the sphincter, but not involving it, produces no inconvenience after the parts have once healed, except by the disturbances occasionally found of a reflex character from the presence of cicatricial tissue. Moreover, while not denying the existence of the perineum, he does not think that any such surface exists as the profession has been led to believe, and which operators have aimed to build up. In these cases, he advises, the perineum is lacerated and drawn to each side like the separation of a curtain.

In regard to its repair, notwithstanding the many modifications of Baker Browne's operation, DR. EMMET believes that no one has relieved any of this class of patients by simply uniting the tissues which have been lacerated and no more. His experience and observation has taught him that *some portion of the posterior vaginal wall must be engaged in the line of union in order to secure any benefit;* and that only by this means is the chief support gained, and a permanent result obtained. The true condition of these parts he regards as a rupture of the pelvic fascia reflected over the muscles of the vaginal outlet, and to afford relief, he advises, this fascia must be restored as nearly as possible to its original position.

In his mode of procedure, therefore, for the repair of perineal laceration he aims to unite the fold of perineum, bringing it up to the level of the fourchette, or former site of the hymen, leaving a crescent across the axis of the vagina, so that each horn becomes lost in a sulcus on each side. When the operation is completed, the line of sutures are entirely within the vagina and out of sight, even when the labia are fully separated. The parts come together, closing the passage at the remains of the hymen, leaving the mouth of the urethra fully exposed, as is the case before rupture of the hymen has occurred; and the surfaces all slope gradually

toward the vaginal entrance, as in the natural condition, a result which no other operation on the perineum can bring about, and at the same time with no damage to the glands of the vulva.

In this operation DR. EMMET advises that it is useless to carry denudation so far externally as is often done. It should be limited to the true osteum vaginæ, and the perineum should be further strengthened by bringing forward a transverse fold of the posterior vaginal wall, even if there is no rectocele. The patient should be placed upon the back, with the legs flexed on the abdomen, so that the labia may be well separated by assistants. The vaginal outlet will thus be opened so as to expose the carunculæ on each side. Then if the lower portion of this be seized with a tenaculum in each hand, together with the corresponding surface of the posterior wall of the vagina, and the three points be thus brought together, it will be easy to map out the surfaces which may be united. The most common mistake, he finds, will be committed in taking up too much of the posterior wall; *this should be carefully avoided*, for if done, failure may result from the suture cutting out. It is equally important also to be able to judge of the number of sutures which are to be placed in the angle of the crescent. His rule is to introduce only just so many as are necessary to bring out the angle

of the fold formed by the denuded surface to the vaginal level, and the crescentic line should always be made as small as will be possible to accomplish this.

The essential features of the operation, he advises, are as follows: Make two transverse crescentic denudations; an outer one, with the concavity looking backward, and an inner one with the concavity looking forward. To establish the situation of these crescents, as already stated, three tenacula are employed. With two of these instruments the open mouth of the vagina is to be brought together, by inserting the points at the level of the upper limit of the remains of the hymen, one on each side. The points at which the tissue is thus seized will mark the extremities of the anterior crescent; and while they are held together with instruments, the third tenaculum is to be inserted in the posterior vaginal wall in the median line, at a point that can be drawn forward to meet the former two without giving rise to undue tension. This latter point, he advises, will mark the centre of the posterior crescent. The denudation having been effected, the two crescentic denuded patches are then to be stitched together. This has the effect of drawing the tissue of the perineum upward, so that the vertical rent in the median line will be much shortened, and can

now be closed with a few sutures; *this last step, however, not being essential.*

For uniting the crescentic folds DR. EMMET finds that silver wire interrupted sutures answer the best purpose; silk thread, or worm gut, is employed for closing the perineum and the parts near the skin. The vaginal outlet and the parts within reach are then kept smeared with an unirritating ointment. If swelling or discomfort takes place, hot water is applied by gently separating the labia and allowing a stream to fall from a saturated sponge. It is not necessary, he advises, to tie the limbs together; and if ordinary care be exercised, the urine may be allowed to pass at will without fear of doing damage to the line of union.

DR. R. C. M. PAGE believes that, so far as regards immediate or secondary operation, other things being equal, the immediate operation in private practice, at least, is as uniformly successful as the secondary. This being true, he believes there are numerous evident reasons why the immediate operation should be performed. It can but fail, and in that case the secondary operation can be resorted to afterward. In slight cases he finds that there is no necessity for anæsthetics; but where the laceration is extensive they may be required.

The wound, he advises, should be thoroughly

cleansed with a three per cent. carbolic or other antiseptic lotion before closing it, and, as an additional precaution, a sponge wrung out of the same material may be placed against the os uteri during the operation. In cases of extensive rupture, extending into the rectum and high up in the vagina, these parts may be closed first with carbolized catgut sutures, after Simon's method. The rest should then be closed, by means of the interrupted suture.

Giving opium for the purpose of constipating the bowels, he advises, is bad practice. If the patient can pass her urine, let her do so; it does not in the least interfere with the operation, and the use of the catheter is not only inconvenient to all parties, but is almost certain to cause cystitis. During the after-treatment the vagina should be carefully syringed out about twice daily with a tepid 3% carbolic or other antiseptic lotion.

The sutures, he directs, should be made to embrace an abundance of tissue--one-half inch or more on each side of the line of rupture—otherwise they do not bring the parts together properly, and are likely to cut out. Also, they should be removed on the seventh or eighth day, and not before. Want of attention to these points, as well as to antiseptic precautions, and a lack of proper care and intelligence during the after-treatment, are, he finds, the

chief causes of failure in this, as in the secondary operation. In his opinion, atmospheric conditions have but little influence on the result.

In regard to the kind of suture used, DR. PAGE has had little experience with any but the ordinary interrupted suture, such as is generally used at present, and does not think there is any particular advantage in the serrefines of Vidal, as recommended by Mann and Garrigues, even in slight cases. The quill suture, he considers both clumsy and untrustworthy, inasmuch as it does not go entirely around the wound. Moreover, with the present methods of rendering silk aseptic, he believes that for general use, as in perineal operations, it is equal in these respects to silver wire, besides possessing the additional advantage of giving the patient no inconvenience while in situ, does not interfere with cleansing the parts, and causes no pain in removing it. Catgut, he advises, has the objection to this of being too quickly absorbed. Kocher, of Berne, however, appears to have overcome this difficulty by placing it in oil of Juniper for twenty-four hours, and then in alcohol (95%) for preservation. At the time of immediate use it may be dipped in a 5% solution of carbolic acid.

When the immediate operation has not been performed, or has failed, DR. PAGE directs that the sec-

ondary operation should not be deferred any longer than is necessary to get the patient in proper condition—two months or so from the date of delivery. For this purpose tonics should be given, if necessary, and the general health attended to.

In cases of laceration both of the perineum and cervix, DR. J. B. HUNTER has for several years sewed the cervix and perineum at one sitting, and has never regretted doing so. If, however, the laceration of the cervix is very extensive, or any condition exists that renders hæmorrhage probable, he always does the operations separately. Sometimes, too, it is not desirable to keep the patient long under ether, in which case he advises that both operations should not be done at the same time.

The disadvantages of the operation are: that it is impossible to reach the cervix, if it should be necessary, without sacrificing the new perineum; that the patient is longer under the influence of ether; and that the sutures cannot be removed from the cervix so soon.

On the other hand, the advantages which he claims for it are: that the patient takes ether only once, and that she and her friends are spared the preparation (always somewhat formidable in a private family) for two operations; that there is an economy in time, as she lies in bed no longer than if the opera-

tion on the perineum alone had been done; and that a delicate patient suffers less fatigue, and is less emaciated than she would be after having gone through two separate operations.

He usually removes the sutures from the perineum on the eighth day, and those from the cervix two weeks later, though with care he advises that the latter may be safely taken out earlier; while, again, there is no objection to letting them remain a month or more if it is convenient to do so, as they cause no irritation or inconvenience if the twisted ends of the wire are properly bent over and out of the way.

Therefore, while Dr. HUNTER does not recommend the double operation as a rule, yet he considers it entirely practicable in many cases, and often prefers to do it.

After the operation, he advises, it matters very little whether the bowels are moved or not during the first week, although it is very important that they should be thoroughly moved before the operation. During the first three or four days also, there is generally pain enough to need some opiate, which causes more or less constipation. Soon after the sutures are removed, he directs that an enema be given, and the nurse be particularly careful that no injury be done by straining, or by the passage of hard fecal lumps.

LACERATION OF THE CERVIX UTERI.

With reference to prevention of laceration of the cervix, DR. W. GILL WYLIE believes that much can be done by treatment previous to, and close attention during, labor; and also that the accident can be limited and its serious after-effects be restricted. He regards morning sickness as a quite certain indication that the neck of the uterus is in an unhealthy condition. For the relief of this symptom he finds dilatation of the cervical canal for three-fourths of an inch perfectly successful, not only in affording relief, but in softening the hardened condition of the cervix so commonly associated with it. Moreover, he believes if obstetricians would take as much pains to prevent laceration of the cervix, as they do to prevent laceration of the perineum, much would be done to avoid the occurrence of this accident.

The membranes, he advises, should not be ruptured until absolutely necessary, and the dilatation of a rigid os should be carefully and slowly assisted

by means of dilators. Violent voluntary expulsive efforts at the time the head is passing through the cervix, should be controlled, if necessary, by anæsthetics, and an effort made to regulate the expulsive force with the fingers against the head. Also the timely and skillful use of the forceps, in retarded labor, he finds, often prevents sloughing and some of the more serious forms of laceration of the cervix. When used, however, the cervix should be dilated as much as possible with safety, before the instruments are applied.

For the treatment of the laceration when it has occurred, DR. WYLIE advises that, as a rule, uncomplicated lacerations occurring in a healthy cervix, will heal so as not to need special treatment, provided the parts are kept clean and the patient remains in the reclining posture for two weeks or more. When, however, severe hæmorrhage is caused, the wound should be sewed up at once.

In other cases, as a rule, he considers it better to keep the patient in bed, using antiseptic vaginal injections, and allow nature to heal the wound as far as she will. Then, after the patient has fully recovered from the effects of her labor, allowing full time for involution to take place, if, on examination, a decided laceration exists, he directs that it be sewed up without further delay, unless for some good reason the operation is contra-indicated.

Furthermore, if the cervix is sewed up before the patient is about much upon her feet, not only will the laceration be cured, but all the sequelæ that may follow a lacerated cervix are prevented; whereas, if the symptoms indicating treatment are waited for, as these symptoms are the result of some complication—a displacement, inflammation, or some other serious disease—a complete cure is by no means certain, even by the best treatment. It is true, he advises, that the laceration can be cured; but the displacement may necessitate the use of a pessary until the uterus is atrophied by old age; besides, the bad effect of uterine disease upon the general health may become permanent.

But in all cases he believes that unless the laceration is sewed up just after the accident, when the edges are fresh, it will be better to wait until involution has had time to take place; usually six weeks being amply sufficient. After this, paring the edges and sewing up the wound is not only the best way of curing the laceration, but also the subinvolution that may exist at the same time.

Regarding complications, DR. WYLIE advises that any inflammation of the endometrium, or granulations extending above the point of laceration, should, as a rule, be treated before the wound is closed.

Extensive erosions of the everted lips of a lacer-

ated cervix should be treated by rest in bed, hot-water vaginal injections, and, if associated with induration of the cervix, or adjacent tissue, pressure, with carefully graded tampons, should be made; in case of the surface being so sensitive as to bleed when touched, astringents should be used, but not oftener than twice a week. When this is cured, if a distinct laceration exists, it should be sewed up to prevent a return of the trouble.

Cystic degeneration of the follicles of the mucous membrane is, he finds, a common result from old laceration of the cervix; and when it is of long standing, to effect a permanent cure an operation is necessary, for the trouble is so deeply seated that applications alone do not reach it, unless they are strong enough to actually destroy the tissue. When the erosion is treated by caustics, a hard, tense scar is the result, which is pretty certain to give way and cause a sensitive, irritable ulcer.

Where slight or recent displacements of the uterus exist, depending upon laceration of the cervix, curing the latter, he finds, usually corrects the displacement by removing the cause; and sometimes even decided displacements may be cured by sewing up the lacerated cervix, for it may induce involution, give tone and strength to the ligaments, and restore them to a normal state. But he considers it safer to

sew up the laceration early, for in many cases, when displacement is once established, artificial support will always be needed to keep the uterus in place.

When inflammation of the pelvic, cellular, and peritoneal tissue is present—by far the most serious and troublesome complication of a lacerated cervix, and which, DR. WYLIE finds, may in most cases be prevented by a careful use of antiseptics—time must be allowed for it to become subacute. (So variable is this trouble, however, that no general statement would give a correct idea of all cases.) In comparatively recent cases, complete rest, external counter-irritants, and hot-water vaginal injections are about all that he considers it safe to recommend.

After several weeks or months, however, according to the character of the case, it may become subacute, and when so, by pressure and traction, and by counter-irritants, he is able in most instances, to secure a good condition for operation on the cervix in from two to six weeks. And even where there is much tenderness on pressure, and induration and adhesions firmly fixing the uterus in the pelvis, this may be done. In such cases, he advises, the general hyperæsthetic state of the pelvic tissue cannot always be removed by this preparatory treatment; but when he succeeds in getting the uterus

more freely movable, he considers it safe to operate if antiseptic precautions are taken.

Often he finds that a laceration that has more or less healed up, will give no trouble until the uterus, after another labor, is left subinvoluted, or is enlarged and congested by inflammation in or near it, when it begins to evert and erode, and soon presents a very bad appearance. In these cases, he cautions, although it is true that *if the inflammation be cured and the swelling removed before the mucous membrane is too extensively affected, the patient will be relieved, yet the same trouble is liable to recur.*

When the case is associated with laceration of the perineum of sufficient extent to affect the integrity of the floor of the pelvis, it is a most serious complication of a lacerated cervix, for it very soon indirectly causes displacement of the uterus. To prevent this troublesome and in some cases incurable result, Dr. WYLIE advises that it is best to sew up both the lacerated cervix and the lacerated perineum, as soon as practicable; and this should be done, if not before, at any rate soon after the patient is well upon her feet after labor.

He also calls attention to the fact that as the same conditions which result in a vesico or recto-vaginal fistula, are liable to cause a laceration of the cervix.

the latter is usually found in cases of fistulæ, and should be treated after the fistula is cured.

Concerning local applications, he finds that too long or two frequent use of irritant astringents, such as Churchill's solution of iodine, will contract the tissues to such an extent as to constitute a real complication, and too prolonged or severe preparatory treatment does harm rather than good. Also applications may be made so as to cause a cicatricial contraction, and large tampons, when kept in constantly for a length of time, tend to obliterate the line of junction of the cervix with the vagina, and to separate the superficial and deeper tissues, so that it is much more trouble to pare the edges and bring them evenly together.

Therefore, after giving Nature a fair chance to do what she will after labor and after removing, as already indicated, as far as practicable, any existing disease or complication, if a laceration still exists, with gaping, everted, or eroded edges, or any obstinate abnormal condition, such as cystic degeneration, etc., rather than treat it with the actual cautery, caustics, or very strong astringents, to force healing by granulations, he pares the edges, removes any superfluous or abnormal tissue, and brings the parts together with silver sutures. The actual cautery he finds, destroys more tissue than it is usually neces-

sary to do in paring the edges, and it makes an open wound which must heal by granulation and leave a scar. The same thing may be said about the use of caustics; besides, as it takes many applications to destroy the tissue, it is, in his opinion, even worse than the actual cautery, for it not only makes an open wound, but adds irritation by repeated applications. Also powerful irritants in time produce a cicatrix much the same as though escharotics had been used.

Hystero-trachelorrhaphy, he advises, is usually a very simple operation, and when precautions are taken against sepsis (as should be done, even in the most trivial operations), and care is taken not to operate during peri-uterine inflammation—there is, perhaps, no operation in surgery which accomplishes so much good with so little danger to the life, or even the comfort of the patient. This consists in freshening the edges of the laceration and in bringing them together with sutures. Or, if it is double, in paring the edges of both lacerations, leaving a space in the centre for the cervical canal, and sewing up both sides. When there is superfluous tissue that is abnormal, he believes it well to remove it when paring the edges. Sometimes when the superficial wound is small, after having cut through the mucous membrane at the angle of the wound, it is found that the

laceration extends deeper, even as high as the internal os. Such cases DR. WYLIE usually finds, are old ones that have been supposed to have been cured by applications. Also, when the cervix is long, the mucous membrane abnormal, and the uterus retroverted, he amputates the flaps, *leaving a cervix of normal length*, and sews up the laceration above this point; at the same time covering the cut surfaces with mucous membrane, in bringing the edges together, and leaving an opening for the external os.

Again, in those cases where the uterus has undergone involution more or less completely, the cervix being large, this enlargement, it is cautioned, may be due to hyperplasia of the connective tissue, and change in the mucous membrane, and when the edges of the wound are pared, unless care is used, the sutures will not reach the deep muscular layer, and only bring together the superficial tissue. And afterward, when the induration disappears, a crooked cervical canal may be the result; that is to say, the opening in the deep tissue will not correspond with the opening in the mucous membrane. When this does happen, he finds that fistulous openings along the line of the sutures are apt to form. Moreover, hæmorrhage is often somewhat troublesome, but rarely sufficient to do the least harm, and when so it is readily controlled by well placed sutures.

In those cases where a part of the cervix is amputated, and in those where the condition or the superabundance of the mucous membrane warrants one in removing it all the way round the canal, there is, he advises, some risk that the opening left for the external os may close up, and the secretions from the body of the uterus may force an opening somewhere else. To obviate this, he considers it well to insert a tent of linen or cotton, watching the case several months after the operation, and if necessary, enlarge the opening by dilatation, in case it has become too small. After operating, he directs that carbolized injections be given twice a day. The sutures are left in one week, and the patient kept in bed for several days after this.

Before beginning to operate, Dr. WYLIE insists upon the importance of first making an accurate diagnosis as to the extent of the laceration, the side that is torn, or, if double, how much each is torn, and the extent of the diseased tissue to be cut away, etc. When operating, he cuts out the angle of laceration, not to get out a cicatricial plug, but to enable him to draw the edges evenly together, and to reach the firm, muscular tissue at this point. He may take out a small triangular piece of muscular tissue, but, he cautions, because it is hard and gristly, and of a white, yellowish-gray color, is no evi-

dence that it is other than the firmly contracted muscular tissue. The upper layer may be cicatricial, and the connective tissue may be somewhat hardened, but it is no more a cicatricial plug than any other part of the same tissue near or involved in the tear. When, with two tenacula the flaps can readily be brought together, (he does not mean when the mucous membrane can be made to slide up over the flaps, and approximate the edges), sutures are then introduced. From two to four well-placed silver sutures, made to include the mucous membrane, the thickened connective tissue and other superficial tissues, and the *deep, hard, and gristly muscular fibre* on each side, are considered, as a rule, amply sufficient to secure close apposition of the sides. When the tissues are firm, he uses a Sims' uterotome to cut out the diseased tissue ; or, when quite soft, a pair of curved scissors are better. A sharp, bevel-pointed needle is preferred, slightly curved near the point, and not less than three-fourths of an inch long.

Finally, the operation, DR. WYLIE advises, although not dangerous or formidable, so far as the patient is concerned, is very troublesome and tedious to the operator, and even experts, in handling the necessary instruments, will take from twenty minutes to an hour or more, according to the case, to do the operation.

DR. W. T. LUSK finds that in those cases of rapid labor in which the patient's nervous system is in such a condition as to lead her to bear down strongly almost from the beginning, bad lacerations are liable to occur. In such cases, he directs, in order to avoid this result, the disorder of the nervous system should be controlled by anæsthetics, etc. He seldom employs digital dilatation of the cervix, which, he advises, acts only in a mechanical manner. The use of Barnes' dilators are greatly preferred by him, which, he finds, simply render the cervix tense and excite normal uterine pains, and when these occur, the cervix, which is previously rigid, becomes soft and the dilator is expelled. If required, he re-inserts it. When necessary to use the forceps, traction force should be exerted only during the interval between the pains, at which time the parts are relaxed. If exerted during a pain, when the parts are rigid, he advises, laceration will almost surely occur.

DR. M. A. PALLEN advises that lacerations of the cervix uteri are often prevented by facilitating labor and promoting a reasonably rapid delivery, so that certain conditions of the generative organs may be averted. He does not believe in the propriety of waiting to operate till symptoms develop, but considers it a good rule in surgery, and also applicable here, to mend all fractures of tissue, whether of skin,

bone, or mucous membrane, as soon as practicable, and the rectification of the fracture is regarded by him as a preventive against future difficulty. He has never seen a case in which he regretted having performed the operation immediately, but he has met with some in which he regretted that he did not perform it.

As to the propriety of the secondary operation, he advises that unless some profound cachexia exists, the cervix should be sewed up, for if this is not done a centre is left for atheromatous degeneration.

Therefore, when laceration of the cervix is positively diagnosed, he is convinced that the best treatment, based upon thoroughly philosophic grounds, is to close the wound immediately with silver-wire sutures. Furthermore, if the laceration is sewed up at once, primarily the hæmorrhage is thereby checked or avoided, and the shock of the operation is but slight; while secondarily, if the operation is well done, absorption of septic material is prevented, and a serious cause of subsequent septicæmia thus avoided. The torn edges being well fitted together, and the wires twisted sufficiently tight, no suppurative foci remain, and if the parts are kept properly cleansed, it may be safely said that union by primary adhesion will ensue promptly and satisfactorily, and the result will be good in a very

large majority of cases. No raw surfaces are left to absorb septic material from the lochial discharge, because it flows over the approximated torn edges—really healthy tissue; nor will they generate the poison of themselves. In addition, he advises the woman to utilize her period of lying-in to facilitate the union by her quiescence, and she is thereby saved a future operation, involving, possibly, months of suffering before it is discovered to be requisite, and a subsequent period of more suffering and danger during its performance.

Therefore, whenever this procedure can be performed, DR. PALLEN unhesitatingly recommends it in preference to tamponing, the only other method of arresting the sometimes frightful hæmorrhage. If, however, the operation be inconvenient or impracticable, and the gravity of the hæmorrhage demands it, he advises that the woman should be placed in the semi-prone position, and tamponing by means of a Sims' speculum resorted to. But, it is cautioned, this is the only form of post-partum hæmorrhage in which he considers tamponing the vagina admissible.

All cases, he advises, should be operated upon, however slight the lesion, as the laceration is sure to eventuate in alteration of structure, either in hypertrophy of papillæ, or, by involving some nerve-

fibrils in the cicatricial tissue, to beget all manner of neuralgiæ and neuroses.

As to the proper time to perform the operation, four or five days after the cessation of the menstrual flow should be the chosen period; in fact, he considers that all surgical procedures about the female generative tracts should be made at that time, as there is more pelvic vascular quiescence then, than at any other period; the organisms are resting from the labors of the oviposit.

The instrument used by him for paring the edges of the laceration are scissors, about seven inches in length, of a variety of curves, to be able to squarely cut off the cicatricial and eroded tissues. The length of these scissors, he advises, is of great importance, as it is proper to make the denudation with the uterus *in situ;* any dragging or pulling downwards of that organ being unskillful, unsurgical, and possibly dangerous by disrupting old adhesions around the uterus, which might light up a cellulitis. After the paring is done, he applies the sutures, which are passed by means of short, straight, well-tempered needles, with trocar or pyramidal points, very sharp and very hard. Sometimes he finds it more convenient to use a needle shaped like a fish-hook, as it is very difficult to pass the straight ones through the upper angle. These needles are rarely an inch in length, and are

held in the ordinary Sims' forceps needle-holder, whilst the tissue is steadied with a tenaculum. Most of the American gynæcological surgeons, he finds, bend the wire on a silk thread, which is placed in the eye of the needle; but for many years DR. PALLEN has dispensed with the silk, and placed the wire directly in the eye of the needle, which is purposely made larger. Great care should, however, be exercised in passing the needle, lest it snap just at the critical moment. The needle holder should never grasp the eye, and the needle should be placed at such an angle as to be pushed straight through. He is rather particular about these technical details, as upon their proper manipulation depends the complete success of the procedure. The trocar, or pyramid-pointed needles, penetrate without cutting; and, the body of the needle being larger than the point, somewhat of stretching takes place, and there is less oozing of blood than with any other form of needle. He has used them for fifteen years, and they have never yet disappointed him.

Before the wires are twisted, all clots are sponged away, and the edges of the wound accurately approximated without strangulation by the sutures, which are bent on the flat, curved on the cervical tissue, and cut off about two lines from the wound line.

The rules, therefore, which DR. PALLEN lays down

are to close the laceration at the time of the accident, just as we do habitually for a similar perineal lesion, and in default of making the immediate restitution, to perform the plastic restorative operation as soon as possible.

DR. T. A. EMMET believes that unquestionably some limit should be placed upon the operation for laceration of the cervix.

If hæmorrhage occurs, however, he considers this resort imperative, and that it will save the woman years of trouble and after-treatment. But he does not think that stress enough is laid upon pelvic inflammation as a contra-indication; and while few men operate in well marked cases, few, he thinks, recognize the importance of a less pronounced grade of inflammation.

The laceration in itself, he advises, does no harm and should receive no treatment, unless some bad results come from it. If, however, it extends into the connective of the pelvis, more or less of pelvic inflammation is sure to occur. In his opinion it may be properly stated that if there has been no cellulitis, and the accident occurs, the rent will heal and give rise to no trouble. The bad effects, he advises, come from persistent cellulitis, which should be removed if possible.

He considers it important, therefore, to recognize

the existence of pelvic inflammation, however slight it may be, and in those cases it cannot be said whether or not the operation will be necessary, until it can be determined whether or not the patient can be cured otherwise. So long as there can be detected, by pressure from the finger, any tenderness in the neighboring connective tissue, he does not consider it safe to operate, as he feels satisfied fully that a certain amount of cellulitis has previously existed, and a condition is remaining which would need but slight provocation to re-establish the inflammation, were he to disregard this warning.

The successful treatment of uterine disease, DR. EMMET advises, depends upon the amount of indurated tissue remaining. When the rent has extended beyond the cervix into the connective tissue of the pelvis, a cicatricial mass frequently forms which acts as a foreign body. If the cicatricial tissue in the cervix is removed, and, by any means, the cervix is restored to a soft, healthy condition, the exciting cause of neuralgia and anæmia also is removed. And when a patient comes to him suffering from neuralgia, he wastes but little time in preparatory treatment, except to cure the cellulitis, but goes at once to the limit of the laceration and removes all cicatricial tissue.

Therefore his advice is to first remove the celluli-

tis as far as possible, and a large number of cases will not, when that is done, need an operation. If, however, cicatricial tissue exists in the angle of the laceration, and the woman suffers from reflex disturbances, an operation is considered necessary. But if cicatricial tissue is found hardening the surface of the cervix, and no anæmic or other symptoms exist, he directs that the woman be let alone, but she must be watched for the development of symptoms. A mere laceration, he advises, need not be closed unless it gives rise to symptoms.

Usually, however, DR. EMMET finds that when the cases are studied carefully, evidence of blood poisoning at the time of parturition is found, and perhaps has prevented the healing. And he believes that if care is taken after confinement, to keep the parts *clean*, probably in most cases healing will occur spontaneously and without induration.

DR. P. F. MUNDE advises, as a prophylactic measure, that any means which will prevent too rapid labor, too rapid passage of the child's head through the cervix, doubtless will lessen the frequency of the occurrence of laceration.

Concerning the operative procedure, he believes that if the laceration is sufficient to permit eversion of the cervix, the operation should be performed. When, however, the laceration is small, and there

are no symptoms, he thinks it better not to operate; this is also his opinion in cases where cellulitis exists. But large lacerations, he directs, should be closed even though they be cicatrized.

He also gives the following various indications for performing the operation: Cervical catarrh, menorrhagia or metrorrhagia, cervical endometritis, chronic ovaritis, areolar hyperplasia, and reflex neuralgia with laceration. If, however, the cervix is cicatrized over *smoothly*, he doubts the propriety of operating. Anæmia and tuberculosis are not, in his opinion, contra-indications in all instances, for he has met with cases of wasting diseases even where there was considerable plastic adhesion, where operation was indicated.

With regard to the importance of avoiding the operation when pelvic inflammation exists, if the slightest tenderness is present he would do so, provided he had not given the patient sufficient time to get well of such inflammation. He also believes that the operation is not contra-indicated in all cases, although the vaginal walls may not be entirely soft; but he does not make this a rule.

As to the dangers of secondary hæmorrhage after operation for laceration of the cervix, DR. MUNDE mentions two instances in which this accident occurred. One of these he treated with hot alum-water,

which was unsuccessful, the bleeding being finally controlled by ice-water and vinegar. In the second case he was obliged to resort to tamponing the vagina with alum tampons. In both, however, union took place between the cervical flaps as desired.

DR. C. C. LEE considers the following conditions as contra-indications, with reference to the proper limitation of Emmet's operation for laceration of the cervix: (*a*) Peri-uterine cellulitis is an obstacle to its performance, because, in his opinion, a patient who has peri-metritic deposits has a cervix which is in no condition to have traction exerted upon it. (*b*) Regarding pelvic peritonitis, acute or chronic, he considers that fixity of the womb, from whatever cause is an insuperable barrier to this operation. (*c*) When any decided inflammation exists about the uterus, or so long as any tenderness can be detected in the uterus itself, or in the neighboring connective tissue, indicating acute or chronic inflammation, he considers it unsafe to perform this operation; and it is equally contra-indicated when endometritis or cervicitis is present. (*d*) But even where no inflammation exists, there are other conditions by which it is contra-indicated, namely: general forms of ill-health, such as profound anæmia, chlorosis, constitutional syphilis attended with vaginal

lesions, etc.; excepting those conditions which it is reasonable to suppose depend upon the laceration itself.

His guide for the performance of this operation is the obvious pathological influence of ulceration.

In proper cases, nothing has convinced DR. LEE that any form of caustic or cautery is to be preferred to the simple surgical operation. Other treatment than operative, he advises, even when used assiduously, is palliative, not curative, and is at best based on false pathology. And where the laceration has cicatrized and compressed nerve filaments, which excites reflex irritation, operation will, he finds, accomplish in six weeks what the galvano-cautery will in six months.

He also urges a more careful supervision of the lying-in state than generally prevails, and maintains that a woman should never be discharged from the obstetrical list until it has been determined whether or not laceration of the cervix or perineum exists, and if present, not until they have been repaired. His conclusions, therefore, are as follows:

I. When cases of lacerated cervix present themselves, never consent to operative treatment until all traces of pelvic inflammation have been removed.

II. Be guided in determining whether or not an operation is necessary, solely by the pathological

import of the laceration and its probable influence upon the pelvic tissues.

III. In the treatment of cervical laceration, adhere resolutely to trachelorrhaphy, until time shall yield a more sure and better method than that devised by the patient ingenuity of Dr. Emmet.

With regard to the immediate closure of the laceration, after its occurrence, he does not consider it advisable. In the very few cases in which he has tried it, the sutures cut through the tissues, causing complete failure of the operation.

For hastening delayed labor, with a view of avoiding laceration, DR. LEE advises that the perverted nerve force should be quieted and the harmony of action, which should exist between the body and cervix, restored. To accomplish this, he finds the use of morphine and chloral very serviceable. In addition, gentle digital dilatation may be resorted to.

DR. WM. M. POLK believes that, in ordinary labors, *premature rupture of the membranes is a prominent cause of laceration of the cervix, and should be carefully avoided.*

Concerning the immediate closure of the laceration, he advises that if the edges of the wound can be closely approximated, as in the secondary operation, the object sought for, namely, protecting the

woman from the absorption of septic poisoning through open vessels, may be attained. But, in his experience, it is exceedingly difficult to accomplish this, even with the best assistants and light, and under the most favorable circumstances; therefore, in most cases, probably the end desired would not be secured. That being the case, he thinks the patient should be spared the inconvenience of the primary operation, and that the secondary one is preferable and will answer all purposes, except, perhaps, in certain cases of hæmorrhage, when it is necessary to operate at once.

DR. C. A. VON RAMDOHR calls attention to the fact that in operating for lacerated cervix, a great deal of time is occupied in passing the sutures. As a rule the needle is first passed through one lip, then extracted, introduced into the other one and extracted again. To avoid this, he employs a so-called "combined needle-forceps," which may be united or separated by a pivot and notch-lock at their middle. By the use of this instrument he is enabled to pass a needle through both lips at the same time, and extract it without difficulty, thereby greatly shortening the time of the operation.

The method of procedure advised by him is as follows: A straight needle (Pallen's trocar, pointed by preference, longer or shorter according to the

thickness of the denuded cervix) is clasped at a right angle in the right-hand (pivot) forceps. It is pushed through both lips, then the open left-hand forceps (notch) is hooked on the pivot and the open branches are pressed against the cervix until the point of the needle lies, as it always must lie according to the construction of the forceps, between the branches. The left-hand forceps is then closed and the right one opened and withdrawn, and the point of the needle grasped by the left forceps is extracted.

In this way, he has frequently been able to pass four sutures, in a unilateral laceration, inside of four minutes.

ABORTION.

DR. J. W. MCLANE finds that abortion is most common among the highest grades of society, and next among the very lowest and much over-worked classes. It also depends a good deal upon the care which the woman takes of herself. A pregnant woman, he advises, should avoid crowded rooms, churches, or places of amusement, and should have her bedroom well ventilated, as the excess of carbonic acid gas in the air will sometimes cause abortion. Or, he has known this to occur from so slight a cause as an unpleasant odor in the room, like the smoke of a candle after it has been blown out. Coition should also not be indulged in, for the first three months, in women who are apt to abort, as this may bring it on. Furthermore, he directs that no pregnant woman should be permitted to use a sewing machine, as the treadle movement congests the pelvic viscera. The greatest care should therefore be taken to avoid all exciting causes, more especially at the time for the regular monthly flow, as this is the most dangerous period.

In cases of threatened abortion, he first endeavors to ascertain if it will be possible to stop it. A vaginal examination is made, but with the greatest care, and if the hæmorrhage is found not to come from the cavity of the uterus, or even if it does and is very slight and oozing, provided nothing protrudes from the cervix, and the cervix is normally hard and firm, as is usual in pregnancy, and closed, he considers it possible to avert the accident. He directs that the patient be kept upon her back in bed, and the harder the bed is, the better. She should also use a bed-pan, when required, rather than get up. No alcoholic stimulants of any kind are allowed, but cooling drinks are given, together with a milk diet or very bland nutritious food. Opium is given in strong doses, beginning with gr. i-ii., and afterward gr. i. every four or six hours. He does not think it best to narcotize, but administers the drug as above for a certain period, and then, later on, lengthens the intervals between the doses, keeping up the administration, however, until all the threatening symptoms have passed away. Or, avoiding opium, morphine in doses of gr. ¼ may be used instead, and at a little longer intervals. He also cautions against the use of cold and the tampon. *Don't apply ice anywhere*, as cold applied on the vulva, loins, etc., tends to drive the blood into the viscera,

and thus increase, rather than diminish, the hæmorrhage.

Don't tampon the vagina, unless it is desired to hasten the abortion. Also, no local applications of any kind are called for, but the patient must be kept extremely quiet and at rest.

In cases, on the other hand, where, on examination, a free hæmorrhage from the uterus is discovered, with the cervix soft, dilated, and part of the ovum or fœtus protruding, slight rigors, and perhaps syncope, abortion, DR. MCLANE advises, is inevitable. In such instances, the first thing he proceeds to do is to empty the uterus as soon as possible. To remove the ovum is, he finds, very difficult, on account of its slippery condition, and he does not think it best to use ovum-forceps, as they are very apt to cause harm, while, moreover, if the finger is employed he is also more certain, from the touch, of just what he is doing. He therefore crowds the uterus down into the pelvis, and uses the index finger to empty it; this is also much easier to accomplish during the earlier months, for the uterus is then lower down in the pelvis than later. Where, however, the forceps are resorted to, they should be handled with the utmost care. Then, as soon as the uterus is emptied, the hæmorrhage will cease. (It is cautioned against mistaking a projecting fibroid tumor for a protruding ovum.)

If the cervix is not sufficiently dilated to let the fœtus pass, he introduces a tent, tupelo or seatangle, with a long string attached, either with a flexible catheter, by cutting off the end and running a stilet through it and into the tent, or the tent may be passed with the fingers, or dressing forceps. He then tampons the vagina with pieces of carbolized absorption cotton dipped in glycerine, and with a string fastened to each piece. The bladder is also emptied before and after this procedure. The tampon should not, he advises, be left in longer than twelve hours, by which time the cervix will probably be sufficiently dilated, and the accumulated blood will have dissected off the ovum. Then, just before removing the tampon, he administers a dose of ergot, and, when the tent is withdrawn, by applying pressure upon the uterus it will usually expel its contents. If, however, no ovum comes away, he chloroforms the patient and explores the uterus with the finger, when if an ovum is found it is removed; or if polypi, they are treated with the wire loop.

In certain cases, where something has come from the vagina and been destroyed, so that it is not known whether or not it was the ovum, the first thing DR. MCLANE aims to do is to check the hæmorrhage by friction on the abdomen, etc. If these means do not stop the bleeding, he then plugs

the cervix and tampons the vagina until the following day, when he cleans out the uterus with the finger.

If at three and one-half months or later the fœtus has escaped, and is seen, it should be ascertained, he advises, that the placenta and membranes have also come away; if not, they should be removed at once. Occasionally, however, what is discharged at three months is not as large as a three months fœtus should be, and sometimes the decidua comes away piecemeal. In the latter case, he advises, there is probably nothing in the uterus but decidua, in both cases the ovum having died, perhaps, by the thirtieth day and been partially absorbed. In such instances, if necessary, he uses the silver or copper wire curette to clean out the uterus.

Where there is a watery discharge, slightly bloody, *without pain*, this, he finds, is caused by the bursting of the false bag of membranes (called "dropsy of pregnant women"), and may occur in small quantity every thirty days, without hurting the fœtus or interfering with pregnancy.

Concerning the *after-treatment* of abortion (or miscarriage), this is both immediate and remote. For immediate treatment, he advises that a woman who has miscarried should take the same care of herself as after labor. She should remain *in bed* for at

least ten days, and wash out the vagina every day with a one per cent. solution of carbolic acid and employing a fountain syringe (a Davidson's is objected to by him), with a short tube, and only inserting it about one and one-half inches, otherwise the cervix may be injured. If considerable blood has been lost, great thirst will be experienced, together with throbbing pain in the head, etc. For relief, in these cases, he gives the acetate of ammonia and morphia acetate, keeping the patient in bed, and even using the bed-pan. During the second week he prescribes tonics, etc., cautioning that if care is not taken, some form of uterine disease will be the result.

Regarding the remote treatment, DR. MCLANE endeavors to find out the causes of the abortion (or miscarriage), if possible, and have them avoided in the future. At the next pregnancy, be very careful, he advises, during the period at which the woman miscarried before, for if she can be made to pass this point she will probably go on to full term. Or, if a woman miscarries several times in succession toward the end of pregnancy, say at the eighth month, he thinks it may be advisable to induce labor at seven or seven and one-half months, and thereby possibly save the child. When fatty degeneration is the cause of miscarriage, he gives, the next time,

chlorate of potassium and iron all through the pregnancy; or other drugs may be used which will control the fatty degeneration.

DR. W. GILL WYLIE directs, concerning the use of antiseptics after abortion, that the external parts be washed thoroughly with a solution of carbolic acid, one to thirty, and vaginal douches given from two to four times daily. This is then kept up faithfully for six or ten days, as may be required. The test for the thoroughness of this method, he advises, is that at no time should one be able to recognize, by the smell, the odor which usually characterizes this condition.

At the first sign of septicæmia he washes out the uterus with a solution of carbolic acid, from 1–20 to 1–40, and establishes free drainage from the uterus. Then after the first washing, he gives douches regularly, every fifteen minutes or half-hour, for three or four hours, with a solution of 1–40. If the temperature then falls gradually, he continues the douches in the same manner every twelve hours, or more; but if, notwithstanding these vaginal douches, the temperature should continue to rise, or go up rapidly after lessening for several hours, he at once begins intra-uterine injections, giving one of a solution of carbolic acid, 1- 20, and, after this, douches every half hour, of 1–40, until the tem-

perature falls to the normal. When the injection returns clear and remains so for several injections, he finds that almost invariably the temperature is normal.

DR. P. F. MUNDE believes that where there is no offensive discharge from the uterine cavity, or vagina, intra-uterine injections are not useful. Since the introduction of Chamberlain's tube, he has, in every case in which the vaginal temperature reached 102°, used intra-uterine injections, and has generally found it sufficient to give them three or four times a day. This, he considers, is the only proper local treatment where there are decomposing substances within the uterus. He then continues them till the temperature comes down. In some cases, however, the injection causes a rise of the temperature due to the traumatism, and in such instances they do more harm than good. But, he advises, if the temperature is substantially unaffected, after using the injections for twenty-four or forty-eight hours, they no longer do any good. In these cases, he give sodii salicylat. gr.x., every two hours.

DR. H. J. GARRIGUES considers intra-uterine injections of the greatest value after abortion. In administering them he prefers to use the gum-elastic catheter. He is very favorably impressed with the antiseptic plan as a prophylactic measure, but less favorably as a

curative measure in private practice. He has also employed a concentrated solution of boracic acid, and a solution of iodine, with excellent results in those cases in which he wished to avoid the depressing effects of carbolic acid. In gangrenous cases he has used a 10 per cent. solution of camphor, and also iodoform with very satisfactory results. In diphtheritic cases he has employed an 8 per cent. solution of chloride of zinc, besides the intra-uterine injections of carbolized water, repeated once a day, for seven or eight days, with excellent effect. At the same time, if the parts affected with the diphtheritic exudation can be seen, a solution of chloride of zinc, 1-1, may be applied locally and repeated if necessary.

CONVULSIONS.

In cases of convulsions occurring before labor, with precursory symptoms, DR. J. W. MCLANE advises that a preventive treatment may be employed. If albumen is found in the urine, he administers a tolerably mild saline cathartic, such as citrate of magnesia. If there is a full, bounding pulse, with turgid face, urine scanty and smoky, and the patient complains of "rush of blood to the head," or dizziness, he directs that venesection to the amount of ℥ xvi. be resorted to before giving the cathartic. After the cathartic has been administered the kidneys receive attention. The patient is directed to drink plenty of water, Appollinaris, etc., or, if she prefers it, a rather mild diuretic, such as digitalis with citrate of potassium, which is preferred by him in these cases, may be given; after which mineral waters to aid these. Dry cups are also applied over the kidneys for two or three days; or if bleeding is not practiced, wet cups may be used.

Should any premonitory signs of convulsions ap-

pear after labor has commenced, he draws blood from the arm, keeps the bladder empty, administers much more chloroform than usual, and makes the labor as short as possible. The cervix may even be dilated, he advises, and the forceps employed as soon as possible.

If convulsions are imminent after labor, he permits the woman to bleed from the uterus by not following it down with the hand as much as is generally done. The urine is also drawn off, and if scanty and smoky a cathartic is administered and dry cups applied over the kidneys.

Where there are no prodromata, during an attack of convulsions, DR. MCLANE first endeavors to prevent the patient from hurting herself; something is placed between the teeth in order to save the tongue from being bitten, such as the handle of a hair-brush (a cork is too soft). Also, the patient should not be held too tightly, but merely kept in bed and the clothing loosened around the neck. The windows are also kept open so that an abundance of fresh air may be obtained. When clonic spasms come on, he gives chloroform deeply and keeps up the administration for four or five hours to prevent their recurrence; then morphine is administered to keep the patient in this condition. *Don't give jaborandi or pilocarpine*, he cautions, or intense salivation and

bronchorrhœa will be caused, and probably result in a fatal issue.

After a convulsion occurring before labor, if the induction of labor will cause more irritation than leaving the patient alone, he directs that it should not be done. Generally, however, he finds that it will not, if induced properly by using uterine sounds. If albuminuria is suspected as being the cause of the convulsion, and dependent upon congestion of the kidneys caused by pressure of the uterus, he immediately relieves the pressure by rupturing the membranes before introducing the sound. If, however, labor is not induced, he considers venesection the next best thing, and this he follows by a brisk purgation with calomel, elaterium, or croton oil. These he gives as follows: calomel gr. xx. with bicarbonate of soda; elaterium, he advises, is very apt to be adulterated, therefore it is best to begin with gr. ¼, although if perfectly pure gr. ⅛ would be sufficient; or croton oil gtt. i. in a teaspoonful of olive oil. Should the kidneys prove inactive, dry cups are applied over them. Diaphoretics are also administered, avoiding, however, pilocarpine or jaborandi. Regarding hot air, he considers hot wet blankets as far superior; these are wrung out of very hot water, and the naked patient wrapped in them, leaving only her head uncovered, after which dry blankets are placed

outside of these. The nervous system is also kept quiet. Where chloroform is not given, he advises that chloral or morphine be used.

After a convulsion occurring after labor, DR. MCLANE cautions, *don't bleed now*, but keep the patient quiet with morphia or chloroform, and alcohol, and see that the kidneys and bowels are kept free.

DR. WM. T. LUSK believes that the shortest way to manage these cases is to empty the uterus as speedily as possible. If the patient is seen at an early period after the convulsions have commenced, he often prevents the occurrence of another, while the cervix is being dilated and the uterus is being emptied, by the administration of anæsthetics.

DR. H. J. GARRIGUES advises that, in cases of puerperal tetanus the rational treatment would seem to be antiphlogistic or derivative. The symptomatic indication he finds, is to relieve the pain and quiet the nervous system by the administration of narcotics and antispasmodics. The question as to the application of heat or cold, should be answered by a reference to the thermometer. In most cases, however, the temperature is elevated and even very high, and the use of the ice-bag, or the cold bath, or cold affusion, with dry rubbing, he finds of much service. But in other instances the temperature often sinks to a dangerous degree, when every effort

should be made to warm the patient by hot bottles or bricks, warm baths, warm poultices, and hot drinks.

For the constipation, which is a common feature, *laxative* medicines and enemas are employed in many cases. Also, as he finds that in several autopsies more or less of the placenta has been found in the uterine cavity, *curetting* is considered by him to be the first indication where there is the slightest doubt in regard to the emptiness of the organ. Next, he believes it a wise procedure to employ some *disinfectant intra-uterine injections*, especially a luke-warm 2 per cent. solution of carbolic acid.

The *diet* should also receive the most careful consideration and be made as nourishing and as stimulating as possible; and where the food cannot be swallowed it should be administered per anum. For this purpose Leube's extract of meat, Gaunt's peptones, desiccated blood, etc., are highly recommended by him.

As to the treatment of cases of tetanoid contractions or convulsions which occur during pregnancy or from lactation, DR. GARRIGUES advises that bleeding is contraindicated in those instances which are attributable to lactation or hysteria, and ought only exceptionally to be performed during pregnancy. In his experience antispasmodics, especially

chloral and bromide of potassium, in large doses, seem to meet the chief indications.

The therapeutic value of chloral hydrate as a hypnotic has long been recognized by numerous authorities both here and abroad. Its value as an anæsthetic, more especially in puerperal eclampsia, is none the less evident. Experience from the use of the drug, compared with other remedies in the treatment of this disease, has hitherto been very favorable, as is shown in the following instances:

CASE I.—The patient was an anæmic multipara, aged 28, in her eighth month of pregnancy. She seemed to have enjoyed excellent health up to seven days preceding her confinement, when the extremities became œdematous, and her urine diminished in quantity. When attacked, she was suddenly seized with a convulsion lasting about three minutes, followed by others of increased intensity at short intervals. Her medical attendant gave half-drachm doses of bromide of potassium every two hours without the least effect. When first seen by a leading specialist (about seven hours from the commencement of attack), the patient was writhing under an intense paroxysm accompanied with all the other phenomena peculiar to the disorder. In fact, she was hardly free from a convulsion. Owing to the injured and swollen state of the tongue, it was impossible

to give anything by the mouth. Thereupon, a dose of forty grains of chloral hydrate was administered *per rectum* in thin gruel made with milk and the yolk of an egg. In less than five minutes she became perfectly quiet. This was repeated at intervals of half-an-hour, and thus she was kept under perfect control until her delivery, two hours later.

On examination, the os and cervix uteri were found to be two-thirds dilated and dilatable, the membranes were entire, and a vertex presenting. After gradual dilatation, the membranes were ruptured, Simpson's long forceps was applied, and the child (still-born) delivered without difficulty. The placenta gave no trouble, nor was there any *post-partum* hæmorrhage. There being no return of the symptoms, the injections were now discontinued, when she fell into a sound sleep. About forty-eight hours after delivery consciousness returned, the faculties being unimpaired, although the interim was a perfect blank. The uterine contractions were not in the least interfered with by the use of the remedy. Some catheterized urine was examined, and found to contain one-third of albumen. On the fourteenth day the patient was out of bed, and in a month went into the country as well as usual.

CASE II.—This case was one in which eclampsia occurred, on the third day following parturition, in a

plethoric multiparous patient. Here the attacks came on at intervals of one and two hours. The dose of chloral ordered was half a drachm every three hours. Suffice it to say, there was no return of the symptoms after the first dose of medicine. She was up and about on the twelfth day.

In conclusion, a few remarks may be offered on the claims which chloral has for its advantages over other remedies in the treatment of the disease under consideration. According to Liebreich, it is a quick anæsthetic, non-excitant, leaves no bad after-effects, and interferes but slightly with the cardiac nervous power. Its advantages over chloroform must, therefore, be at once apparent; for, not only is it a quick anæsthetic, and is followed by no bad effects, but it is easily administered. By repeated doses at regular intervals, patients are kept perfectly under control. Again, its superiority over chloroform is evident when the practitioner happens to be single-handed, instances of which are of every-day occurrence in country practices, where surgeons are few and far between. The medical attendant would find it no easy task, both to give chloroform and deliver his patient under such circumstances. Chloroform is also often followed by sickness, and, with the tongue in the condition which it usually is in eclampsia, would prevent anything that might come up into the

throat from being got rid of, thereby favoring asphyxia. Not only can chloral be administered singly *per rectum*, but also in combination with nourishment, such as milk, eggs, etc.; thus saving the disturbance of the patient, as well as keeping up her vitality.

In the first case, bromide of potassium was administered, but with no good result, its action probably being too slow in this formidable disease. Opium and its alkaloids have been advocated; but, where there is renal complication, they are injurious, and of necessity contra-indicated. Also, the first patient being anæmic, bloodletting would not have been admissible; whilst in the second case it was not required, though chloral was given in both with the happiest results.

PHLEGMASIA DOLENS.

DR. J. W. MCLANE advises that depressant treatment, such as bleeding, blisters, etc., is no longer employed. To relieve the pain he administers morphia hypodermically near the seat of the pain. For the swelling, at this time, he advises, it cannot be prevented, therefore nothing should be done, beyond putting the limb in an easy position; that is to say, extending it, and raising the lower part of the bed in order to prevent œdema of the foot, but keeping the body in a horizontal position.

The whole limb is then encased in a linseed poultice, or, if this proves too heavy for the patient to bear, spongio-pilıne or flannel dipped in hot infusion of poppies. The poultice is preferred by him, however, changing it three times daily; but should cloths be used, he directs that they be simply laid upon the limb and not wound around it, and the wrappings should open upon the front of the leg. He also cautions against the application of blisters, as the swelling cannot be stopped, and these only cause

torture to the patient. Soon as the pain subsides, the patient will get better.

The limb should be watched every day, and, after a time, when it is found that pressure of the finger will leave an indentation, he takes off the poultice and applies a compressor bandage, not too tightly, however. At first a flannel roller is used, and afterward a muslin one. Beginning at the toes, the bandage is applied up to the thigh, where, however, sometimes the swelling is so great that it cannot be made to stay on, when this is left until the part has somewhat diminished in size. This application is then repeated every day, and kept up for days and weeks, until the swelling is nearly gone, not allowing the patient to walk, as not infrequently the other leg is also attacked.

As soon as the fever has disappeared, constitutional treatment is resorted to. Commencing with the tincture of the chloride of iron, in doses of gtt. xv., thrice daily, and potassium chlorate, gr. iii–v., every four or five hours, this is continued for a time, after which Blaud's pills are given for a period of several months. Then, when the patient is able to walk, DR. MCLANE prescribes a change of air, together with the administration of quinine and dilute sulphuric acid. Finally, he cautions, nothing in the way of medicine taken by the mouth will break up the

clots in the veins; the only reliable method to pursue is by constitutional treatment.

DR. WM. M. POLK considers absolute quiet of the utmost importance. He never allows such a patient to get out of bed before the end of three or four weeks. Bandages are also applied from the toes upward, and covered with oil silk to prevent swelling. After the lapse of a few weeks, he then resorts to the use of stimulants and friction from the toes up to the thigh. He advises, however, that the swelling will persist six months or a year, and an elastic stocking should be worn during this time.

INFLAMMATION OF THE BREAST.

DR. J. W. MCLANE advises that every woman should have her nipples examined before confinement. Sometimes there will be found only a depression, caused by improper dressing, in place of a nipple, and this, he finds, is sure to give rise to future trouble. Therefore, in such cases, all pressure should be removed, and the patient directed to draw out the nipple by means of suction through a common clay pipe placed over it, and applied every day. The nipple should also be fingered daily. If the parts are too soft he hardens them by the application of tannin, or alcohol, or other astringents, also endeavoring to toughen them in order to prevent cracking. After birth of the child, it is applied to the breast *once*, then again not until the milk flows. The nipple should also be watched, and an application of glycerine, ℥ i., and nitrate of lead, gr. x., used upon it ; care must be taken, however, to wash the part thoroughly each time before allowing the child to suck.

If the nipple ulcerates, he directs that the child be

kept from the breast, and the patient placed upon solid food. Friction is then applied to the breast, the nipple washed with a solution of silver nitrate, gr. x-℥ i., and a *large* nipple shield employed. After the ulcer has healed, the use of the tannin (glycerole of tannin) is continued after each nursing, and the nipple washed carefully before the child is again applied. Should fissure of the nipple occur, this, he advises, must be cured, or ulceration will again take place. The fissure, he directs, should be opened, cauterized with silver nitrate, and covered over with collodion.

Where mammary abscess occurs, DR. MCLANE places most reliance upon the Listerian method of treatment. This plan he finds very successful, a cure usually resulting within four or five days. The abscess should be opened early; poultices are applied and as soon as the pus forms, it is evacuated. For the febrile movement quinine is administered, together with a saline purge. In the country, where the Listerian method may not be practicable, he directs that the abscess be opened under a cloth wet with linseed oil, four parts, and carbolic acid, one part; after which the pus should be squeezed out, and the part dressed by Lister's method.

DR. R. TAUSZKY highly recommends the following as an application for excoriated nipples:

℞.	Balsam. peruv. . . .	gm. iv.
	Olei amygdal. . . .	gm. vi.
	Aquæ rosæ . . .	gm. xxxv.
	Mucilag. acac. . . .	gm. vi.

M. Sig. Apply after each nursing, the nipples being carefully cleansed.

In cases of inflammation of the breast occurring after parturition or during lactation, the application of ice has, in many instances, achieved very striking results, and rarely, if ever, has the inflammation ended in suppuration. In using it, the ice should be broken up and put in an ice-bag, and applied to one or both breasts immediately upon the first intimation of pain or tenderness. This should be kept on for from two to five days, except when nursing. By this means the relief from pain is instantaneous, and the temperature falls within a few hours. In cases where the patient does not intend to nurse, the breast-pump should be applied, and a small quantity of milk withdrawn, particularly if there is much milk congestion. Under this treatment, also, the natural involution of the breast after parturition is very materially assisted; and it is not contraindicated even though the skin be red and œdematous. Where abscess has occurred before being seen, the best treatment is considered by some to be the application of Martin's India-rubber bandage, applied as firmly as possible and for as long a time as can be borne.

PELVIC PERITONITIS.

DR. T. GAILLARD THOMAS gives the following indications for treatment: first, relief of pain throughout the entire course of the disease; second, reduction of the temperature; and third, absolute rest and quiet. In regard to these rules, he advises that the favorable termination of the case, and the prevention of the chronic effects of the disease, will depend, in a very great measure, upon the thoroughness with which they are carried out.

To relieve the pain, at the very onset of the attack opium is given hypodermically; this he considers the best method of administration to commence with, but after the pain is once controlled he prefers to continue the use of the drug by the mouth or rectum, from danger of creating a morbid taste which the former method is more apt to do. This also assists in affording quiet, and by its action on the nervous system limits the inflammatory action. As to the amount given, this will vary in individual cases; sometimes gr. i. of opium, or gr. ¼ of morphia, every

two or three hours will be sufficient, while in other instances twice as much will be required, and continued for a long time before the desired result is obtained. In all cases, however, he advises that the administration must be carried to the point of producing the quiet, etc., which is needed for the favorable course of the disease.

For controlling the temperature, which must be kept as near normal as possible, he prefers cold by means of Kibbee's cot.

The observance of complete rest and quiet is also insisted upon. The bowels are quieted by the opium, cathartics avoided, and should the patient not be able to pass her water with ease, the bladder is emptied by the catheter. Regarding the diet, this is made plain and unstimulating, but nutritious, consisting of milk, beef-tea, etc., and avoiding solid food of all kinds. Where the pulse is strong and rapid, veratrum viride may be employed, giving gtt. v. of the tincture, in water, every four hours, until the specific effect of the drug is exhibited.

Later on, where the chief and perhaps the only product of inflammation has been lymph, DR. THOMAS places most reliance upon counter-irritation. For this purpose he prefers a blister of Spanish flies above all others, four by six inches, which is applied over the hypogastrium, and the part afterward dress-

ed with savine ointment. Then, as soon as this is healed, a second blister is applied directly over the newly-formed skin, and this again repeated every ten days or two weeks, with the most beneficial effects. In other cases the tincture of iodine is considered by him to be a very efficient counter-irritant, painted over the hypogastrium once in twenty-four hours.

In *chronic* cases, he advises, a different plan of treatment is resorted to. The patient is not so rigidly confined to bed, nor the diet so restricted. As the course of the disease may last for several years, he cautions that if undue efforts are made to cure her local disorder, her general health may be seriously injured. Exercise to any great degree should be avoided, and the patient should remain in bed or on a lounge most of the time, going out of doors for one or two dours daily. Her diet, he directs, should be of the most nutritrious character, with a moderate amount of stimulants, and the general health built up by change of air, and the use of tonics both vegetable and mineral, particularly iron.

An important point in the treatment of these cases, DR. THOMAS advises, is the amount of exercise to be taken, and the confinement to be enforced. Regarding this, however, no definite rule can be given for every case, but, generally speaking, when motion does not cause pain or discomfort, the patient is di-

rected to ride in an easy carriage for two or three hours daily; or, where there is no local trouble, the patient may be allowed to walk with moderation. If evidence of marked acuteness is present, however, no motion whatever is permitted. Also, in all cases, he cautions against the patient overtaxing herself, otherwise it may be necessary to confine her to bed when moderate exercise would prove beneficial. Sexual intercourse, of all influences, acts most decidedly in a prejudicial manner, in these cases, and should be strictly limited. Where acute exacerbations occur, local depletion, so highly recommended by some, is considered by him objectionable; that is to say, as a plan to be resorted to with reference to cure. Should he consider it best to continue the administration of the bromide or iodide of potassium (the results of which, however, he considers doubtful), he combines them with iron and vegetable tonics, as follows, and with marked advantage:

℞. Potass. iodidi . . . . ʒ iii.
Syr. ferri iodidi . . . . ℥ ii.
Tinct. calombæ . . . . ℥ vi.

M. Sig. A dessertspoonful in water three times a day.

℞. Potass. bromidi . . . . ʒ v.
Vini ferri dulcis . . . . ℥ iv.
Tinct. calombæ . . . . ℥ iv.

M. Sig. A dessertspoonful in water thrice daily.

Regarding the evacuation of collections of pus or serum, DR. THOMAS advises that if the patient is doing well and does not suffer from local trouble, this should be left to open spontaneously. While, on the other hand, if the collection causes much suffering, and the case is not progressing favorably, and the evacuation is perfectly practicable, it should be done. For this purpose, an aspirator, a small trocar and canula, or a guarded bistoury, may be used.

DR. M. A. PALLEN believes that so far as the effect upon the local disease is concerned, no positive rule can be laid down for the application of either heat or cold; each case must be treated according to its own special indications. Both agents, he finds, have the same effect in diminishing the blood supply of the surface to which they are applied, by constringing the vessels, and both thus increase the vascularity internally. If, however, under the use of one, the temperature does not fall, the character of the pulse improve, and other favorable indications manifest themselves, the other should be tried instead. There is, he continues, a septicæmic peritonitis, with the presence of red serum, where, if cold is applied, death will undoubtedly be hastened.

DR. P. F. MUNDE has been accustomed to apply cold in the first stage of peritonitis, and heat in the

latter, when exudation has taken place; but he finds that it is difficult to tell when the cold applications should cease and hot ones be commenced. He would say, however, that generally after forty-eight hours it is proper to make a change from cold to hot.

DR. W. T. LUSK prefers dry cold to moist heat, as it causes less tympanites and acts equally as well as a local anæsthetic.

DR. W. M. POLK considers that there are two points involved in the question of treatment: first, the effect of cold in reducing the general temperature; and secondly, its local effect upon the inflammatory process. Of the former he finds a good example in its favorable use in cases of sunstroke with high temperature; while an exemplification of the latter may be found in its early application, by means of the ice bag, to any part in which the inflammatory process is beginning.

Should pelvic peritonitis develop after parturition, DR. R. TAUSZKY regards cold applications as the best means that can be employed, but more especially in the early inflammatory stages. By this means he finds that both the pain and hyperæmia are lessened. At first, he advises, the applications must be repeated very frequently, then after the fever has disappeared, warm baths or sitz baths can be resorted to, but he

believes that the use of warm injections for peritonitis are dangerous.

DR. T. A. EMMET recommends the use of mats, for the reduction of temperature, made of rubber tubing, through which water is passed, to be laid on the abdomen, thighs and head. The water may be at ordinary temperature or iced.

Where the case is seen very early before effusion has taken place, he advises that a bladder of cracked ice be placed over the hypogastrium, with the endeavor to arrest the progress of the disease. If, however, the process has advanced to such a degree that this seems impossible, then warm linseed poultices are applied over the parts every three or four hours, the bowels kept constipated, and any fever which may be present controlled by cold, or sedatives such as veratrum viride, aconite, etc.

When the acute stage has passed, and it is evident, from vaginal examination, that the effused material is fully organized, DR. THOMAS applies a blister, six by eight inches, over the hypogastrium, with the hope of breaking up the morbid action before it goes on to suppuration or chronic induration. He cautions, however, that this should not be applied before the febrile movement, as well as the more acute symptoms, have subsided. Some, he advises, object to blistering from fear of causing strangury, but he has always employed it with the utmost satisfaction. If the case tends to an acute course, and suppuration be evident, he directs that this be assisted by the continuous application of poultices.

The general symptoms of the inflammation should be quieted, so long as the acute stage lasts, after

which the iodide or bromide of potassium may be given, although in his experience, these remedies do not really afford any benefit. He recommends the administration of mercurial cathartics, however, with much satisfaction, and believes that their occasional use, by acting upon the liver, proves of marked value in relieving the congestion, which is a prominent feature of the disease. Ptyalism, he cautions, should be avoided, as by impoverishing the blood at the onset, absolute injury may follow. Then, as the acuteness of the attack disappears, the bowels are kept open by laxatives, and the application of the blister may be again required, before suppuration occurs or the chronic stage is reached.

Furthermore, he directs, so long as the patient remains in bed, warm poultices, or cloths wrung out of warm water, are to be kept over the hypogastrium. Also, the constant use of the warm douche, for fifteen or twenty minutes at a time, night and morning, according to Dr. Emmet's plan, is considered by him of the greatest value. For this purpose, he advises, the fluid should be as warm as can be borne, and in the later stages tincture of iodine, chloride of sodium, etc., may be added with good effect.

Finally, DR. THOMAS advises, as the suppurative stage passes into abscess, after this has been evacuated, the patient should be very careful to avoid all

undue exertion for many weeks, otherwise a relapse may occur.

In acute attacks where the perimetritis is primary, DR. J. W. MCLANE'S treatment is chiefly symptomatic. For the pain, opium is given to control it, preferably by the hypodermic method, or by the mouth, rectum or vagina. Magendie's solution, m. viii–x., is first administered, and if no vomiting or nausea is caused, he continues this with opium by the mouth, in doses of gr. i., or perhaps with a little camphor, every two or three hours. This relieves the pain, and affords quiet, and limits the inflammatory process. The bladder should also be looked after, and, he advises, it may be necessary to draw off the urine with the catheter, once or twice daily. He also applies poultices to the abdomen, of rather large size, but not very thick, covering this with oil silk, and changing it once every eight hours. Spongio-piline is also highly recommended by him. Enemas of warm water may also be given, but he cautions against the use of cathartics. The food is made nutritious, but overloading of the bowels carefully avoided. After a time the opium is gradually stopped, and the poultices changed for flannels.

Where there is rigidity of the uterus due to exudation, blisters may be resorted to with benefit, but, he advises, do not irritate the interior of the vagina.

Quinine is also administered. Also, to absorb the plastic exudation, potassium iodide, gr. v., with potassium bromide, gr. x., and compound tincture of gentian, ʒi., may be given three times daily. The bowels, he directs, should not be disturbed, as a cathartic may light up a new inflammation. If, however, a laxative is required, he uses sulphur, or buckthorn, (Squibbs' fluid extract), mixed with elixir. Later on, he gives belladonna to tone up the condition of the bowels, administering it in the form of vaginal suppositories, which is preferred by him. Care should also be taken that the patient refrains from all exercise, etc., as this causes pain and rise of temperature.

In cases which are primarily a cellulitis, DR. MCLANE finds that the constitutional disturbance is not so great as in other instances. Opium is given in moderate amount, but not so extensively as in the former cases. Poultices are also applied, and hot water vaginal injections administered twice or four times daily; this, he advises, should be attended to by a nurse, as the patient is not capable of doing it properly herself. When abscess has formed, he considers that it is best to defer opening it, until it tends to point in some certain direction. For evacuating the pus, he prefers to open through the vagina with a bistoury, or the aspirator. By using the aspirator,

also, he is enabled to wash out the cavity, which should be done with a weak solution of carbolic acid.

DR. M. A. PALLEN has met with two cases in which he punctured for and removed effused serous fluid in the early stages of the disease, with Simpson's exploring needle, with the result of aborting it. He also calls attention to the vascular changes in the pelvic organs during the disease; to the evil influence of constipation; to the only limited benefits of Dr. Emmet's method of irrigation with hot water; to the doubtful benefits of applying blisters and tincture of iodine over the hypogastric region; to the usual long duration of the disease, with or without suppuration—facts which have led him earnestly to look for a better method of treatment than those commonly employed—and he therefore suggests the idea of carrying out here the principle so generally and properly taught in surgery, that the best way to produce absorption is by compression.

He also urges the importance of decreasing vascular engorgements by laxatives, of which he believes there are none better than cream of tartar and sulphur, or Hunyadi water, when this region is the seat of inflammation.

His plan for the employment of compression is as follows: The instrument consists of a double water-

bag made of rubber, to rest over and below the iliac fossa on either side, and admitting of a greater or less amount of hot water pressure, according as the case may indicate. The pressure is equable, and causes the least possible amount of pain in this very sensitive condition. Counter-pressure, he advises, can be made from within and below by the introduction of soft clay into the vagina, with the patient in the genu-pectoral posture. He allows the clay to remain in place usually about two days, and then removes it and introduces a fresh portion. This change, however, is made more for the satisfaction of the patient, who imagines that the clay becomes dirty, than because of any special indication. DR. PALLEN has treated several cases by this method, and the result in two was very satisfactory. Of the other patients, two did not carry out the directions, two are still under observation, and one has been only five days under the remedies.

Regarding the employment of manipulation and pressure, he believes that it is in the few cases where the cellulitis occurs in front of the uterus that there is such a want of tolerance to this resort, but that where it occurs posteriorly, as it usually does, tolerance is much greater, especially after the patient has been taught to assume the knee-chest posture, when the clay can be introduced and affords much relief.

DR. C. C. LEE believes that a sufficient amount of local irritation is very liable to be produced by even a tupelo tent, and subsequently a stem pessary, to give rise to inflammation, especially if used just at the occurrence of menstruation, when there is increased susceptibility to local irritation.

DR. T. A. EMMET suggests that flaxseed poultice may be a far better material than clay, as it will not become hardened like the latter. He has made use of Fuller's earth, however, for many years, mixing it with glycerine, and finds it of excellent service, if not retained too long; but after becoming dry it is exceedingly irritating and difficult to remove. He has also found a great want of tolerance of such measures in pelvic cellulitis, and while, theoretically, he believes that equable pressure should promote absorption, yet, he advises, the patient can hardly endure the introduction into the vagina of a moderate amount of cotton saturated with glycerine. Also, it has been asserted by some that even distension from the use of the water in vaginal injection would increase the inflammation. But this is a contingency which he believes can never occur, so long as the water can escape from the vagina.

PELVIC ABSCESS.

DR. T. GAILLARD THOMAS advises that specific medication, that is to say, directed especially toward the existing morbid condition, can accomplish nothing. Every effort is directed toward supporting the vital powers. The most nutritious diet is prescribed, consisting of animal food, as much as the patient can digest, eggs, milk, fresh vegetables, and malt liquors. Brandy should also be allowed, and the state of the blood improved by vegetable and mineral tonics, the preparations of cinchona and of iron being more especially preferred by him. For this purpose the following pill is a favorite with him:

℞.	Quiniæ sulph.	gr. xl.
	Ferri sulphat.	gr. xx.
	Acid. sulphur. arom. . . .	gtt. x.
	Mucilag. acac.	q. s.

M. Ft. pil. No. xx.

Sig. Take one thrice daily, before meals.

As to the surgical treatment of these cases, the

safest rule, he advises, is to let them alone. If they have existed for two or three months, and if there are symptoms of septic absorption, the physician should be governed by the same rules as he would be in a pleurisy. In his opinion, the man who would leave a pleuritic effusion for three weeks and then draw it off, was a dangerous man; whereas he who would leave it for more than three months without doing so was equally dangerous. Therefore, his rule is to leave it as long as possible; then, if it did not get well of itself, to remove the contents.

As to the method of evacuation, he looks upon aspiration as an unsurgical procedure. He thinks it can be used under special circumstances, as a means of diagnosis, and as a tentative measure when he does not dare resort to a better surgical plan. But where it can be done, DR. THOMAS advises that the patient should be placed on the side, the finger laid on the most prominent point, and a surgical exploring needle inserted. If there is pus found in the gutter, the bistoury is employed and inserted into the abscess; then, after the cavity has been evacuated, a drainage tube, or drain of tow, is inserted. This procedure, he finds, is less dangerous than aspiration, and he believes it is well known what fatal results have followed the use of the aspirator through the abdominal walls.

DR. WM. T. LUSK resorts to aspiration when the existence of pus is suspected. If pus is found, the opening is then enlarged and a drainage tube inserted, through which the cavity is washed out. Simple aspiration, however, does not satisfy him very well; if the needle gets into a collection of pus, it does good; but if only serum and blood, it does not render much service.

Regarding the refilling of the abscess, he thinks that small tumors, as a rule, do not refill, but large ones do. When he finds a tumor above Poupart's ligament, tense, shiny and red, he introduces an aspirator needle and endeavors to ascertain its size; the withdrawal of the pus affords relief, but after a week, or perhaps four or five days, he finds that the fluid always re-accumulates. He then cuts down upon it, and when the abscess is reached he passes a grooved trocar, incises it, and stuffs the cavity with oakum, when it usually soon fills up with granulations.

Concerning inflammatory deposits of only serum and blood, DR. LUSK has aspirated a great many times in these cases, using a small needle, and has not seen, in a majority of instances, any benefit follow the operation. In cases in which there is no fluctuation, removal of a small quantity of bloody serum has not, in his experience, been followed by

the benefit which he has been led to expect from the success obtained by others. Therefore, he thinks the operation offers no advantage except when, accidentally, pus is encountered.

DR. P. F. MUNDE advises that if he has reason to suspect that the tumor contains pus, from its rounded appearance, its boggy feel, and its softening at points, it should be *aspirated*. But not less than two months from the appearance of the tumor should be allowed to elapse before any such operative interference is undertaken. The most dependent and boggy part is selected by him, any part in which there is pulsation being, of course, avoided. He first introduces a hypodermic needle, and then, if pus is found, he employs the aspirator. To avoid this double introduction, however, he has had made a large, strong syringe, to which a long, slender needle is attached. If, after the first withdrawal, the fluid re-collects, he directs that it be withdrawn a second time.

DR. MUNDE also mentions three cases of serous effusion in the pelvic cavity, two of which were entirely cured, and the other very much improved by aspiration. In all a boggy sensation was imparted to the finger in the vagina, leading to the suspicion of deep-seated pus. Moreover, he finds that, in some cases, the stimulus of the introduction of the

needle, even if no fluid is found, seems to start up the processes of nutrition, so that the fluid becomes absorbed.

DR. FORDYCE BARKER advises, with regard to the propriety of early operative procedure, that his own rule has been long established, and that is to aspirate early, whether the exudate was serous or purulent. He has seen the aspect of the case changed entirely and in the most favorable manner, by the introduction of a hypodermic needle and drawing off one or two drachms of serum. He knows of no single class of cases in which so little, apparently, physical change produces so marked general improvement.

DR. R. TAUSZKY believes that aspiration is only advisable if the exudation is not entirely soft, and that this procedure should be reserved for those cases in which ordinary means failed.

PELVIC HÆMATOCELE.

DR. J. W. MC LANE directs that in the acute form, absolute rest and quiet be maintained, and brandy, or ether, be administered hypodermically. Opium is considered by him to be of no value here.

In subacute cases, he draws the urine every eight hours, and administers suppositories containing opium and belladonna. Concerning operation, if the patient is doing well, he would not open the sac; but if it threatens to break down, or hectic comes on, he opens through the vagina with a bistoury, or perhaps the aspirator, after which the sac is injected with a solution of carbolic acid, and the treatment for peritonitis resorted to.

DR. T. GAILLARD THOMAS' indications for treatment are, to check the tendency to further loss of blood; to prevent death from prostration; and to relieve the pain. These, he advises, should, if possible, be met at the same moment, as the dangerous effects all occur simultaneously. He directs that the patient be at once placed in a position

of complete rest, and a full dose of morphia given hypodermically. Cloths wrung out of ice-water, or a bag of crushed ice, should be laid over the hypogastrium, and hot bottles applied to the feet. Stimulants, brandy and water, or iced champagne, should be given freely by the mouth, if the stomach is not too irritable. Should prostration become so alarming that collapse impends, and the stomach be unable to retain it, then brandy ʒ ii., or ether ʒ ss., is injected hypodermically. After reaction has taken place, the utmost quiet should be secured, all pain and nervous shock relieved by the free use of opium, and the diet carefully attended to, consisting of milk, animal broths, farinaceous gruels, etc.

Concerning the resort to surgical measures, he advises that the mere fact of a mass of blood being in the peritoneum does not warrant its evacuation. If, however, after a time, suppuration with septic absorption, becomes manifest, then he incises and empties the sac. Therefore, so long as the tumor seems to be doing no harm, and nature is endeavoring to absorb it, he directs that it be let alone.

For operating, he uses a trocar and canula, plunging it into the most dependent part of the tumor; or the posterior vaginal wall is lifted by a Sims' speculum, the mass opened by a tenotomy knife or small bistoury, and the clots removed by the fingers. The

sac is then washed out with tepid water, or a weak carbolic acid solution, and repeated once or twice in twenty-four hours.

After the acute symptoms have subsided, a blister, four by six inches, is, unless contraindicated, applied over the hypogastrium; and this, DR. THOMAS advises, may be repeated every ten or twelve hours with advantage. Then, after a while, quinine, alone or combined with sulphuric acid, in full doses, is given and continued for some time, with very great benefit.

DR. WM. T. LUSK directs that the tumor be left alone, simply keeping the patient quiet and in bed. By this means of treatment, he believes that no case will ever be lost, while on the other hand if a knife is thrust into Douglas' cul-de-sac, and the blood evacuated, a large number of cases will terminate fatally which might otherwise be saved.

LEUCORRHŒA.

DR. FORDYCE BARKER believes that while local and constitutional causes combine to develop leucorrhœa, yet he thinks it questionable whether the latter are not too often disregarded, in the present day, both as regards diagnosis and treatment of the disorder. Many of these constitutional causes, he advises, such as atmospheric changes which develop other and general catarrhal affections, a cold, damp climate or residence, plethora in some, anæmia in others; everything which induces defective nutrition and debility, as prolonged lactation, excessive fatigue from certain employments, the continued standing position for many hours of shop-girls; all these are well recognized and understood.

The influence of nerve disturbance as a consequence of defective nutrition in causing this affection, he thinks is, perhaps, not so generally appreciated, although he believes that most practitioners know the fact that, in some of their patients, strong mental emotion is sure to bring on a troublesome leucorrhœa.

Therefore he lays especial stress on the importance, in many cases, of constitutional treatment; and he has seen leucorrhœa and various morbid conditions of the os and cervix disappear, by the use of proper hygienic measures and such treatment as is indicated for the improvement of the general health.

Indeed, DR. BARKER has long given up the treatment of this troublesome class of cases, designated by Gooch as "irritable uterus," by topical agents, but he has had some success in constitutional treatment. And in very many cases where leucorrhœa and other uterine disorders have been the consequences of parturition, he considers local treatment not only useless, but often positively injurious; while he finds that a cure results from appropriate constitutional treatment. Of course, however, he advises that a careful examination should be made of the organs in the pelvic cavity, in all such cases, and if any lesion be found which local treatment can cure it should be resorted to.

Therefore he does not in any way depreciate the importance of careful physical exploration, but simply calls attention to the fact that there are cases where, on account of peculiar circumstances, local treatment and local examination is not possible, or practicable, or useful; and that in these cases particularly, as well as in others, constitutional measures

may be resorted to with the greatest propriety and benefit. But local measures, he insists, will not effect involution of a large, flabby uterus, or contract its enlarged veins.

In young, unmarried ladies, DR. BARKER finds that leucorrhœa and its attendant symptoms are not at all rare; and every year he is consulted concerning it, chiefly by those who come to the city to "finish their education," as it is termed. The moral depression from homesickness and exhaustion of nerve-power exercised in accustomed directions, seem to him to be the most common of the constitutional causes of these cases. He suspects that the most frequent error in the treatment of these cases, is found in a disregard of the necessity of such remedial agents as will secure a healthy performance of all the organic functions, a neglect of the morale, and a routine prescription of some preparation of iron, which, under these circumstances, is sure to destroy the appetite and produce headache, etc.

For treatment in vaginal leucorrhœa, DR. P. F. MUNDE advises that this symptom may be very effectually controlled by painting the canal, through a cylindrical speculum, with a mixture of fluid extract of hydrastis canadensis and glycerine, equal parts, and placing a couple of tampons, soaked in this fluid, into the vagina, to be removed in twenty-four hours.

As an injection, he considers a teaspoonful of the plain fluid extract of hydrastis in a pint of water an excellent one to continue the more powerful effect of the application mentioned. Indeed, he has found this remedy superior to any other astringent in this affection, as it can be used undiluted, he advises, without cauterizing or eroding the vagina or vulva.

In cases of *vaginal leucorrhœa*, DR. J. B. HUNTER directs that the general health must receive attention, employing every means at command to improve it. At the same time, the patient should be instructed to use simple vaginal injections of hot water, which alone exercise a decidedly tonic effect on the parts affected. If this discharge still persists, he may find it necessary to direct the use, after the hot water, of some mild astringent. He always insists upon the thorough use, at least once a day, of water as hot as the hand can bear it, for at least ten minutes, the patient lying meanwhile on the back, over a bed-pan or other vessel. As a rule, he uses for this purpose ʒ i. of pure carbolic acid to a gallon of water, and finds that this renders it more efficacious.

If, however, the discharge proves obstinate and does not yield to this simple treatment, he may consider it necessary to use some astringent or other drug. Whatever is used, he advises, may be conven-

iently added to the last pint of the injection, so that it shall come in contact with the vagina after it has been thoroughly cleansed by the hot water. He considers tannin the most useful astringent in these cases, using it of the strength of ʒ i. to O.i., with the addition of about ʒ iv. of glycerine. In his experience the various astringent injections popularly recommended, such as that of white-oak bark, are generally too strong. Also, he does not approve, as a rule, of the use of oily vaginal suppositories, as the application of the drugs they contain is uncertain.

An excellent injection which he recommends in many cases of anæmic vaginal leucorrhœa, is the following:

℞. Ext. eucalypt. glob. . . . ʒ i.
Aquæ . . . . . O. i.

This, he advises, is a mild astringent, and a decided antiseptic.

If, however, these simple remedies, together with careful attention to the general health, do not benefit the patient, and if the leucorrhœa persists, DR. HUNTER considers it to be his duty to make a physical examination. In the case of unmarried women, this should of course be postponed as long as possible, and looked upon as the last resort; but in the case of married women it is justifiable to make an examination earlier, especially as the probability

is greater of finding some condition demanding local treatment. In the virgin a flexion of the uterus may be present, sufficient to cause congestion of the cervix, or of the entire uterus. Or he may find a simple or a gonorrhœal vaginitis, in which case the astringents do harm and must be discontinued.

In cases where the injection is relied on, and the discharge irritates or excoriates, he employs a solution of ʒi. of bicarbonate of soda to the pint of water, which commonly gives relief.

Another excellent injection which he recommends for simple vaginal leucorrhœa, is a solution of common salt, ʒi to O. i., and where that does not answer, he finds that the same quantity of boracic acid often does well.

However, he advises that no rule of treatment can be laid down for vaginal leucorrhœa, even for cases apparently similar; but he emphasizes the fact that very mild measures will suffice in uncomplicated cases; that such cases moreover, may be aggravated and rendered complicated by the early use of powerful astringent or other drugs; that in beginning with simple remedies the case often ends with them; that in all cases, especially in anæmic girls, the general health should never be lost sight of in anxiety to relieve the patient of a solitary symptom; and that in unmarried women the existence of leucor-

rhœa without pain or other symptoms, very rarely necessitates a physical examination.

Cases of *cervical leucorrhœa*, DR. HUNTER advises, are most commonly found in women who have been pregnant, but may occur in those unmarried, and signify disease of the cervix. It may be a moderate degree of endo-cervicitis, or it may be extensive laceration, or hypertrophy of the cervical tissue.

This, he advises, can only be decided by examination, which should be resorted to at the outset, in order to ascertain the amount of disease with which it is necessary to deal.

In the treatment of this form of leucorrhœa, the injections which he has recommended for simple vaginal discharges are of little value. While he finds that copious injections of hot water do much to reduce the congestion of the cervix, they do not cure it. Also, the astringent and other drugs are of no use whatever. If the laceration is not extensive, he directs that the exposed surfaces may be treated by the direct application of the strong tincture of iodine, of iodoform in powder, or of a solution, or the solid stick, of nitrate of silver. Many other caustics are used and recommended for these cases, and although during their use the discharge will diminish or even cease entirely, yet he finds that it is sure to return when the treatment is suspended.

Where there is little or no laceration, but a diseased condition of the cervix itself, more powerful caustics, as the strong nitric acid, are sometimes used with advantage. Where the cervix contains polypoid growths, or where the gland structure is diseased, the cautious use of the sharp curette is sometimes proper.

In cases, however, where the laceration is extensive and of long standing, he has never seen permanently good results from any application, however perseveringly employed. In such instances he relies upon the aid of surgery. And, indeed, DR. HUNTER has often seen patients who have suffered for years from a profuse cervical leucorrhœa, which had been treated in vain by every application that could be suggested, cured in a few weeks by simply uniting the torn surfaces, after they had been carefully freshened and all diseased tissue removed.

In some aggravated cases he finds that applications seem to increase the congestion and render the hard tissue even harder. When it is desired to make applications, however, Sims' speculum should be used, and the tenacious secretion entirely removed first, although this is not always easy to do. A little absorbent cotton wrapped on the end of a piece of whalebone, he finds, always answers well, or a small piece of dry sponge, held in a pair of forceps, facili-

tates the cleansing of the diseased surface. Another method is to use a long-nozzled syringe, with which to draw the secretion out, or to dislodge it by a stream of hot water. After this has been thoroughly removed, the cervix should then be dried with a little absorbent cotton, the application made, and a flat piece of cotton, with a string attached, pressed against the cervix, and left there for some hours.

A method he has sometimes found to answer well, after the congestion has been reduced by hot water, is to apply the solid stick of nitrate of silver over the whole surface, and as soon as it is dry, to paint it over with flexible collodion. One point which he considers of great importance, is, that unless the exposed surface is perfectly free from secretion, the strongest caustics are neutralized and rendered inert.

Moreover, under appropriate surgical treatment, Dr. Hunter finds that most of such cases as he describes get entirely well. The operation should never be attempted, however, without preliminary treatment.

In that form of cervical leucorrhœa which accompanies malignant disease, his treatment, when they are beyond the reach of surgery, is, of course, only palliative; but it is an immense relief to these unfortunate patients to have the discharge arrested for a time. To accomplish this he has found noth-

ing so efficacious as swabbing the ulcerated surfaces with strong nitric acid, being careful to protect the surrounding parts during and after the application. Or, in some obstinate cases of cervical disease, brilliant results, he finds, may be obtained by the use of the sharp curette, but, as a general rule, he advises that this means of cure is not indicated.

In the *uterine form of leucorrhœa*, which commonly signifies polypoid growths in the cavity of the uterus, destructive changes in a fibroid growth, sarcoma, or other malignant disease, DR. HUNTER'S treatment, in detail, of these affections, includes in addition to other surgical measures, the use of the curette, and subsequent applications of iodine, strong carbolic acid, and possibly nitric acid. Here, again, he advises, medicated vaginal injections are utterly useless. Water alone, slightly carbolized, suffices to prevent the discharge from becoming offensive, and to remove it when in that condition.

For the following method of treatment by iodoform, excellent results are claimed in the leucorrhœa of girls. The patient is bathed for the first few days in lukewarm water, and the vagina syringed out two or three times daily with lukewarm infusion of chamomile. When the inflammation is somewhat reduced by this treatment, usually after three days, the vagina is dried with salicylated cotton on a uterine sound,

and then an iodoform pencil is passed up above the hymen. In two days, after a bath, this procedure is repeated, after which the cure is, in most instances, complete. Instead of the pencil, iodoform in powder may be strewn in the vagina with somewhat better results.

DR. T. A. EMMET advises that the great point in the treatment of these cases is to find out the cause of the leucorrhœa, whether it be by over-work, too little exercise, or a constipated condition of the bowels, etc. In every instance, however, he considers that this symptom—leucorrhœa—must be looked upon as caused by perverted or impaired nutrition.

DR. T. GAILLARD THOMAS first endeavors to ascertain the condition giving rise to the discharge, and whether in the form of inflammation or congestion of the uterus, vagina, or Fallopian tubes, whatever it be, he advises that the cause underlying the symptom leucorrhœa should always receive appropriate treatment.

Regarding general treatment, to commence with, he puts the patient upon the use of tonics, such as quinine, strychnia, iron, etc.; together with sea-bathing, change of air, and the avoidance of all exciting or depressing emotions.

If the vagina is involved, after cleansing it, he washes the canal over, by means of a cotton-wrapped

rod, with a solution of silver nitrate, 1–10. The vagina is then tamponed with cotton wet with glycerine, and to which a string is attached, the tampon being left in for twenty-four hours; after which, copious astringent and soothing injections are practised night and morning. For this purpose he considers alum, tannin, infusion of oak bark, zinc, and lead the most desirable to be employed.

The following is often preferred by him:

℞. Acidi tannici . . . . . ℥iv.
Glycerinæ . . . . . ℥xvi.
M.

Of this, a tablespoonful is added to a quart of tepid water, and used as a vaginal injection for five minutes, every night and morning.

Or, the following is very highly recommended by him:

℞. Cupri sulphat. . . . . ʒiss.
Zinci sulphat. . . . . ʒiss.
Aluminis sulphat. . . . ʒiss.
Glycerinæ. . . . . ℥vi.
M.

This is also used as above. He also finds that boracic acid, ʒi., or chloral hydrate, ʒss., or fluid extract of pinus canadensis, ℥ss., to a pint of warm water, renders excellent service.

Furthermore, he directs that the nitrate of silver

solution should be applied once a week, in diminishing strength, and followed by the cotton tampon, saturated with glycerine, or glycerine and tannin, until the leucorrhœa is cured. But, he insists, the cause of the disorder, if it still exists, must not be lost sight of; this must receive the necessary treatment, otherwise the leucorrhœa will again appear.

Finally, DR. THOMAS gives the following general rules for treatment of these cases:

I.—Keep the uterus in perfect position by a pessary if it be decidedly displaced.

II.—By appropriate cathartics, keep the portal circulation free and the rectum emptied of fæces.

III.—Cure laceration of the cervix if it exist, and remove polypi and fungosities.

IV.—Remove all weight from the uterus from above, and all traction from it from below.

V.—Keep the cutaneous circulation active by baths, friction, exercise, and pure air.

VI.—Keep the blood and nerve states normal by tonics, exercise, etc.

VII.—Counteract all toxæmic influences, such as malarial (whether palludal or sewer emanations), uræmic, scorbutic, rheumatic, or arthritic.

VIII.—Keep the menstrual function normal by careful supervision.

IX.—In case cardiac disease, aneurism, hepatic

disease, pelvic peritonitis, or perimetritic cellulitis are primary causes of it, recognize the futility of local treatment, and do not annoy the patient by a resort to it.

ENDOMETRITIS.

(UTERINE CATARRH.)

In cases of chronic uterine catarrh, DR. P. F. MUNDE considers it utterly useless to expect to cure the case by such mild remedies as the plain, or even compound, tincture of iodine, the solution of silver nitrate, even of the strength of ʒ i–℥ i., or pure carbolic acid. This plan will certainly fail, and in chronic corporeal endometritis, and in the cervical variety, he advises that it will surely increase the discharge. Moreover, he has faithfully tried these mild remedies, and has never seen the slightest benefit in the cervical, and but temporary benefit in the corporeal variety. In the virgin or nulliparous married woman, as a rule, he considers it necessary to enlarge the external os. This, he advises, is essential for two reasons: (*a*) to give free vent to the accumulated endo-cervical mucus; (*b*) to allow the ready application of remedies. In doing this the following method is employed by him:

The cervix being exposed through a Sims' (or af-

ter a fashion through a large cylindrical or bivalve) speculum, a Sims' uterine knife, or simple bistoury, or straight scissors, is passed about one-fourth of an inch into the cervical canal, and the anterior lip is divided by one quick stroke; the instrument is then turned against the posterior lip and this also is incised, and the same is done with each lateral lip. Four incisions have thus been made, each about one-fourth of an inch deep, completely dividing vaginal and endocervical mucous membrane, and making the external os nearly or quite as large as the calibre of the cervical cavity. In order to insure this opening against speedy closure, it is imperative that the four flaps of mucous membrane formed by this cervical incision be removed. If this is not done, even frequent sounding and forcible dilatation will not prevent the flaps from re-uniting, and in a few weeks the external os is as narrow as ever. He has invariably met with this result when he has left the flaps *in situ*, and hence has adopted the plan of seizing each flap with a fine tenaculum, and trimming it off with curved scissors, so as to have a funnel-shaped external os. The raw surfaces of this slight wound, he finds, soon cicatrize over, and the os retains its funnel-shape.

But it is not necessary, he advises, to perform this operation in every nullipara; indeed, in many the

discharge has rendered the os patulous, the examining finger easily enters it, and its lips are pulpy and eroded.

He has found the same condition in virgins and married nulliparæ.

After the os has been enlarged, DR. MUNDE'S next step is to destroy, as thoroughly as possible, the cervical glands which furnish the annoying mucous secretion. To do this effectively, once and for all, he takes a sharp curette, with cutting edge (Sims' or Simon's), and scrapes the whole cervical canal up to the internal os, until the creaking sound tells him that the subglandular base has been reached. Do not be afraid, he advises, to do this thoroughly, since no harm can be done, and unless the glands are entirely destroyed, their secreting power is liable to survive. Then, when the whole canal feels smooth, he applies, on a cotton-wrapped applicator, or, what is better, a wooden or glass rod, pure nitric acid, being careful to protect the external surface of the cervix and the vagina by packing cotton underneath. This application must be so thorough as to give the cervical canal a charred, yellowish-black appearance, with not even a drop of blood issuing from it. In order to effectually protect the cervix from the acid, he frequently uses the cylindrical speculum after curetting. Any excess of acid, he cautions, should be

mopped up with cotton, and several tampons covered with vaseline placed against the cervix.

In some instances, however, he has merely applied the iodized phenol (equal parts), or saturated solution of chromic acid. But he prefers the nitric, as more efficient and scarcely more painful.

If the patient is a multipara, he finds that it is rarely necessary to enlarge the external os; indeed, it is generally lacerated, and more or less gaping; and sprouting from the surface of the everted lips, will be found more or less numerous fungoid granulations, which are partly enlarged papillæ, and partly distended follicles. These must be removed in order to cure the hypersecretion, and to put the cervix in proper condition for the plastic operation of Emmet. The sharp curette is here also an excellent instrument in his hands, although the curved scissors are often more rapid and efficient in removing large and tough vegetations.

It is these same papillomatous growths, he cautions, which to the comparatively uneducated touch feel like epithelioma, and give rise to mistaken diagnoses and unfavorable prognoses. A mere clip of the scissors removes them, and leaves a clean, smooth, although raw, surface, which needs only to be attached to its opposite fellow by sutures to effect a cure.

After removing these granulations, DR. MUNDE directs that the surface should be painted with tr. iodine, or sol. arg. nit. (ʒj. to ℥j.) or iod. phenol; or, if the production of a superficial slough appears desirable, nitric acid should be applied, and an emollient tampon inserted.

Again, he advises, a very common condition is that of cystic hyperplasia, the everted surfaces being dotted with numerous small translucent, more or less prominent, spots, which are simply occluded cervical glands (Nabothian follicles). Every one of these must be punctured with a bistoury or scarificator, and its cavity obliterated by thorough swabbing with tr. iodine, or it will be a constant source of mucous secretion, and its presence will interfere with union if trachelorrhaphy is performed.

The operation of crucial incision of the external os, followed by the sharp curette and nitric acid to the cervical cavity should, he believes, be performed at the residence of the patient, and the latter kept quietly in bed for a day or two at least. It is not that it is attended by special danger, for indeed, he has performed it many times in his office or the dispensary, and seen no bad effects from it. But within the past two years he has met with three instances of unfavorable reaction to this treatment, which has induced him to observe the precautions

usually advisable in all operative procedures about the uterus. Two patients upon whom he practised this method at his office during one winter, disregarded his positive directions to go home at once and remain quiet during the remainder of that day, but went down town shopping. It was a cold, damp day, and, as a result, within a few days he was called, and found severe pelvic cellulitis, which confined them to their beds for several weeks. During the past winter also, he scraped away some fungoid granulations from the external os of a patient at Mt. Sinai Hospital, and applied pure nitric acid; she was at once put to bed, but a furious cellulitis ensued which kept her in the hospital for several months.

These are the only cases, he advises, out of several hundred treated in a similar manner, which have been followed by the slightest unpleasant consequences. DR. MUNDE has also curetted the cavity of the uterus proper many, doubtless several hundred, times, and in perhaps twenty cases has swabbed it out with pure nitric acid; in only one instance, however, did a cellulitis follow. Therefore, he is inclined from this experience, to look upon the cervical canal as rather more susceptible to inflammatory reaction from this operation than the uterine cavity, especially when a severe caustic, like nitric acid, is

applied; and he believes this greater liability to be due to the intimate relation of the cervix to the lymphatics which abound in the paracervical cellular tissue. Hence, he cautions, while applications above the internal os are more liable to produce shock and peritonitis, those to the cervix are more frequently followed by inflammation of the pelvic cellular tissue.

But in spite of this danger, he considers the severe measure (sharp curette and nitric acid) by far the most advisable, because it is the most effectual. He has never as yet found it necessary to substitute the actual cautery, so warmly recommended by Sims; but he has resolved, in the very next case which proves rebellious to the acid, to use the Paquelin long slender tip, and thoroughly sear the cervical cavity up to the internal os. In doing this, he advises that the danger of thereby contracting the latter orifice should be borne in mind.

In cases of catarrh of the endometrium proper, DR. MUNDE seldom uses the sharp curette above the internal os, except when it is his purpose to remove vegetations or hyperplastic mucous membrane of unusual exuberance, or where the dull curette has not prevented the return of the disease. And then, also, he is tempted to follow the curette by fuming nitric acid, and has seen none but good re-

sults follow this apparently heroic treatment. But, as a rule, he finds the dull curette and milder caustics, such as iodized phenol, co. tr. iodine, or sol. arg. nit. ʒ j. to ℥ j., sufficient to effect an improvement.

Also the soluble gelatine pencils containing these ingredients (except the nit. silver), and also iodoform, sulph. zinc and copper, have at times been beneficial in his practice; but, he advises, the difficulty occasionally encountered in keeping them in the uterine cavity, and their tendency to produce uterine colic, owing to their frequent insolubility, has somewhat deterred him from using them as often as he has wished to do. If, however, they are readily soluble (and those made by Mitchell, of Philadelphia, and especially those of Fleischer, of 652 East Sixth Street, in this city, are unusually so), he considers these pencils, by their long contact with the diseased surface, decidedly preferable to fluid applications. When employed, they are retained in the uterus by flat tampons over the external os.

In this respect, as a rule, he thinks that where an immediate, positive effect is desired (styptic, astringent, or caustic), fluid applications on cotton-wrapped applicators are preferable; but where a steady, gradual, alterative influence is called for, soluble bougies are indicated.

Also, the nitrate of silver is usually prepared in

pencils by fusing with nitrate of potash, in various proportions; and, he cautions, as it is particularly liable to produce uterine colic in this form, he has never thus employed it.

Furthermore, an indispensable condition to the safe and effectual application of caustics to the endometrium, is the patulousness of the uterine canal, particularly the internal os. Fortunately this is usually the case, the discharge softening the tissues and dilating the canal. But when nitric acid is to be applied, he advises that it is always well to secure a canal of sufficient width to permit the easy insertion, up to the fundus, of a straight rubber stick wrapped with cotton, and a previous dilatation with a tupelo tent for a couple of hours will attain this end.

Also, whether the application be made to the whole uterine canal, or to the cervix alone, it must be remembered, DR. MUNDE insists, that the more powerful the caustic the longer will it be before the slough separates; that of nitric acid usually takes from five to seven days; that of iodized phenol or pure carbolic acid, three to four days; that of tincture of iodine two days. But not until the slough has separated, should a second application of a milder nature be made. He usually employs a solution of nitrate of silver, one drachm to one ounce;

or tincture of iodine; and then continues these applications every other day, or twice a week, until the raw surface is glazed over, or a return of the discharge shows that the severe treatment has not been effectual, and requires to be repeated wholly or in part. It should be remembered, however, that so long as constant applications of caustics are made to a raw surface, it cannot heal. Hence, he advises, it is well, after a couple of weeks of steady treatment, to allow the patient a week's rest, in order to give nature a chance to heal the wound; if she then fails, he begins again, and perhaps a third and a fourth time.

Moreover, he advises, that *hot* injections should be steadily used whenever there are no tumors in the vagina, need scarcely be mentioned. The vaginal leucorrhœa usually present is, he finds, very effectually controlled by painting the canal, through a cylindrical speculum, with a mixture of fluid extract of hydrastis canadensis and glycerine, equal parts, and placing a couple of tampons, soaked in this fluid, into the vagina, to be removed in twenty-four hours. As an injection, a tablespoonful of the plain fluid extract of hydrastis in a pint of water, is considered excellent to continue the more powerful effect of the application just mentioned. And he has found this remedy superior to any other astringent in

vaginal leucorrhœa, as it can be used undiluted without cauterizing or eroding the vagina or vulva.

Patients with chronic endometritis or endocervicitis, he directs, should be treated at least twice a week, and usually every other day. The more chronic and aggravated the case the more frequent the treatment. Then, as improvement manifests itself, intermissions of several days, or a week or two, may be made, in order to test the persistence of the benefit.

DR. MUNDE does not refer to the time-honored practice of dilating the uterus with a sponge-tent, and tearing away the hyperplastic glands and mucous membrane when the tent is removed, because the dilatation is more safely accomplished by the tupelo, and the removal of the diseased tissues more thoroughly by the sharp curette. But, he advises, when the uterus is unusually enlarged and a decided drastic and alterative effect is desired, the sponge-tent may still be employed and prove beneficial. The usual caustics should follow its application. The forcible dilatation of the whole uterine canal by steel divergent dilators, or graduated sounds, has proved exceedingly useful in his hands in this disease. And not only does the dilatation allow the easy application of topical agents, but the free exit of fluids and the steady pressure of the dila-

tors in themselves, act beneficially on the diseased tissues.

Moreover, he has found those cases the most amenable to treatment, and the most favorable for a permanent cure, in which the uterine discharge is chiefly maintained by a narrow external or internal os, or where a laceration of the cervix and consequent hyperplasia of the follicles is present. The radical operations for these conditions, as he has described them (removal of diseased glands and papillæ by the curette and caustics, division of the external and internal orifices, and, in given cases, closure of the laceration) usually secure a permanent cure. On the other hand, the most obstinate, he advises, are those instances of catarrhal endometritis and endocervicitis, in which the external and internal orifices are anatomically normal, and no special hyperplasia of the glands or mucous membrane can be detected. Here all efforts to rest on the normal secreting qualities of the mucous membrane, usually prove unavailing, and permanent relief seems hopeless.

But where there is a distinct pathological condition or lesion of the orifices or tissues of the uterine canal, the removal of that condition and the restoration of the canal and its walls to the normal state is generally possible, and a permanent cure can with

fair certainty be promised. DR. MUNDE'S experience, at all events, does not coincide with that expressed by the words of one of our most eminent gynæcologists when giving his opinion on two cases of sterility depending on chronic uterine catarrh (one endometritis, the other endocervicitis), which recently consulted him, viz.: "This is an instance of that interminable uterine catarrh, which is practically incurable." Both these cases came to him utterly discouraged, and, after three months of the treatment here described, were discharged, to all appearance cured, having been free from discharge for one month without treatment. Whether they remain so is, of course, another matter. But, he advises, they were both certainly relieved long enough to give them a chance to conceive, and if this happy event should take place, nature alone can, during the puerperal state, complete the cure. And even if this one attempt at relief fails, and after some months the discharge returns, as all catarrhs are liable to do, better success may attend a second course of treatment. Therefore he certainly does not think it right to discourage all such patients and deprive them of all hopes of maternity (should they chance to be nulliparæ), when experience has shown him how much good a thorough, persevering course of local treatment will do them.

In this regard, however, DR. MUNDE excepts that class of cases which have been made a special study by Dr. Noeggerath, viz., latent gonorrhœa in the female, where catarrhal infection (he desires to call it affection, for he does not believe in the frequent venereal transmission of this disease, as warmly advocated by Dr. Noeggerath) of the vagina and uterine canal has spread to the tubes, and has thus planted itself beyond the reach of topical, as well as general, medication. These cases, he finds, when once chronic, are really incurable, and, if they recover, do so almost in spite of, not in consequence of, treatment. But fortunately these cases are not the majority of those which come under observation. For them, he advises, only the last resort of Tait's brilliant operation—the removal of the diseased tubes, generally with the ovaries—remains.

In addition to these means of active treatment, he also directs that accompanying anæmia must be suitably treated. The influence of iron and other tonics is as marked in improving the tone and functional power of the uterine mucous membrane as of any other organ of the body. Pelvic plethora should also be relieved by saline laxatives, the general circulation stimulated and regulated by massage and active exercise, and active hyperæmia of the sexual organs prevented by abstinence from sexual inter-

course, during the local treatment here described. And he believes that it certainly must be a desperate case which resists all these measures.

Finally, concerning the objection, made by some, to the use of nitric acid because it was liable to be followed by contraction of the cervical canal, DR. MUNDE admits that this contraction does take place, but he does not care for this, because in these cases the canal is, as a rule, already too large, and a moderate amount of contraction is desirable. But it should be recollected that he does not recommend the application of the nitric acid sufficient to make a deep slough; moreover, if there exists cellulitis of the remotest origin, he would not apply either the curette or nitric acid until, at least, he has tried all other methods without success.

With regard to carbolic acid alone being sufficient, he has occasionally succeeded in the use of this remedy, but has more frequently failed. Also, he has never used either the actual cautery or the galvano-cautery.

Regarding the scrofulous diathesis, he believes that it has a great deal to do with the continuance, probably the production, of this diease.

In treating such patients, DR. MUNDE finds that many intractable cases do not improve under mild applications, no matter how conducted, but a certain

proportion will get well under heroic, active, and persevering treatment. At least these will be cured sufficiently long to become relieved of their sterility; and when this is the prominent feature in the case, the great object in the treatment is accomplished; besides which, many of these patients are cured of the uterine catarrh. Preparatory treatment he also considers of the greatest importance, quite as much so as the active treatment, more especially in cases where the uterus is immovable, where it is one of the essentials; where, however, the uterus is perfectly movable, he considers it usually as well to go on with the heroic treatment at once.

In cases of *hæmorrhagic endometritis*, DR. MUNDE considers iodine one of the best applications, as styptic and alterative, to the uterine mucous membrane. In applying it he uses a Sims' slide applicator, wraps it with absorbent cotton, saturating the latter with iodine and passes it up to the fundus uteri. He then leaves the cotton in to increase the styptic effect, and also as a direct tampon, by direct pressure, against any hæmorrhage that may result in the next six hours. This (iodine) is applied once or twice a week for several weeks.

Before applying the iodine the first time, however, he curettes the uterus with Thomas' blunt curette, to remove the little millet-seed polypoid growths.

The sharp curettes, he cautions, are more or less dangerous.

DR. W. GILL WYLIE believes that many of the so-called cases of chronic uterine catarrh are due to the general condition of the system, or to a diathesis, and although the catarrh may be improved temporarily, if the diathesis is permitted to remain uncorrected, the local condition will return.

In cases of cervicitis, where there is the slightest tenderness, he commences with the simple application of pure glycerine upon cotton, applied not oftener than once in three days. This is followed for a time with a saturated solution of alum in glycerine, to which he adds a very small quantity of carbolic acid, making the application once in three or four days. Then, for the first time, he passes a sound, and usually, especially if the patient has not borne children, he finds it necessary to dilate the cervical canal. For this purpose, he employs a Sims' instrument, dilating first the external and then the internal os to some extent. After which he then begins the treatment of whichever cavity is diseased.

If the mucous membrane of the cervix is extensively involved, after trying astringents, although he does not think they do much good, he generally uses the curette, more especially if the patient complains

of menorrhagia. After using Sims' curette thoroughly, he then makes an application of pure carbolic acid, rarely using anything more powerful than this. Nitric acid he objects to, on account of the possible contraction of the eschar; this, however, does occur, he finds, after application of the actual cautery. Moreover, he does not believe that nitric acid is necessary, in many cases, above the internal os of the uterus, as he finds that carbolic acid accomplishes all that is desired. Or, if the uterus is large and soft, he uses iodine.

In cases of failure to cure, DR. WYLIE believes one great reason to be that the curette and the local applications are not thoroughly employed. This is also true where the lesion is situated higher up. In regard to this, he advises that applications to the uterine cavity, without dilating to some extent the internal os, are of no use whatever. It should also be made through a curved silver tube, so that it can be delicately touched to every point. If thus employed, careful that each little delicate recess is touched with the local application, he finds that many of these cases can be cured which before had been regarded as incurable. And if the uterus is indurated and hard, anteverted, and the patient complains of bladder trouble, etc. (having been under treatment for many years, in various places),

he has generally found these cases about the easiest ones to treat, since they have been almost universally treated without enlarging the internal os. But, in these instances, even with the uterus enlarged and the cervical canal open, he always prepares the parts by removing tenderness with applications of glycerine and alum; and if the cervix is not open, subsequently dilating it with Sims' dilator, observing throughout the strictest rules of cleanliness, wetting the instrument with carbolic acid or iodine. Frequently he finds that these cases are relieved within a week, and can be cured within six weeks by this plan of treatment.

In addition, the general condition of the patient should receive most careful attention, as, if this is neglected, probably the local condition will return. Moreover, of all the diatheses which may give rise to this condition, he believes the rheumatic diathesis to be the most active.

DR. R. TAUSZKY believes that in chronic uterine catarrh mild applications are best resorted to at first. Nitric acid he does not employ, but commences with mild applications and then gradually reaches the strongest solutions. He finds, however, that in most cases some form of displacement is present, which should be first corrected. After using glycerine in the preparatory treatment, he has for many years used

cotton tampons. But if he finds that mild applications fail, stronger ones are resorted to.

In case of *acute endometritis* DR. T. GAILLARD THOMAS considers complete rest of mind and body as essential points in the treatment. In severe cases, the patient is kept absolutely quiet in bed, upon her back, and not permitted to sit up, or to change her position even to satisfy the calls of nature. To assist in this measure, as well as to relieve the pain, opium is administered freely; in the severe attacks giving gr. i. of opium (or its equivalent of morphia) every three hours. By this means, also, the inflammatory process is, in a certain degree, modified. Cathartics should be avoided, unless constipation is present, and, as a rule, opium is the only drug administered. Soft, warm linseed poultices are also placed on the hypogastric region, covered with oil-silk to preserve the warmth, and renewed once in twelve hours. Leeches and cups, he advises, only serve to annoy the patient, and should be avoided. Should the temperature run high, veratrum viride is given to control it. The diet should be simple, consisting chiefly of fluid foods, involving the smallest amount of excrementitious matters, and thus affording rest to the abdominal cavity and the diseased part.

So soon as the free secretion of muco-pus is shown, he directs that the vagina should be syringed out

thrice daily with copious injections of warm water. Astringent injections, however, and all vaginal applications should be avoided. All examination by the speculum, probe, and, also, after the diagnosis has been made, even by the finger, should be abstained from unless especially demanded. This treatment is then kept up until recovery, or until the disease assumes a chronic form, when a different method of procedure is demanded.

Concerning the application of leeches to the cervix or perineum, the use of silver nitrate, keeping the bowels continually active by the aid of cathartics, and injecting the vagina with persulphate of iron, etc., he believes that any one who will give his method of treatment a trial, will doubtless agree with the plan described.

In *chronic cervical endometritis* DR. THOMAS aims to produce an alterative effect upon the mucous membrane, and avoiding all influences which may cause it to spread. All mental anxiety, depressing influences, such as lactation and any habitual discharge should be at once removed, and the woman, unless plethoric, be placed upon the use of vegetable tonics, the mineral acids, and iron. The diet should be most nutritious, but mild and non-stimulating; and all systems of starvation should be avoided. Also, unless contra-indicated, and varying

in each especial case, he directs that the patient take some gentle exercise in the open air, by carriage or on foot; or if from any cause she is unable to do this, the bedroom should be thoroughly ventilated, and all the doors and windows opened for two or three hours daily, the patient being well protected.

The bowels should also receive careful attention, regulated by saline cathartics, and the skin kept in a healthful condition by occasional baths. He cautions, however, against carrying catharsis too far, and to avoid this, he combines an iron tonic with the cathartic; recommending the following for this purpose:

℞.	Magnesiæ sulphat. . .	℥ ii.
	Ferri sulphat. . . .	gr. xvi.
	Acidi sulphuric. dil. . . .	ʒ i.
	Aquæ	Oi.

M. Sig. Two tablespoonfuls in a tumbler of iced water, every morning before rising.

Or, the following is also considered very efficient by him:

℞.	Sodæ et potass. tart. . .	℥ ii.
	Vini ferri amari (U. S. P.) .	℥ ii.
	Acidi tartaric.	ʒ iii.
	Aquæ	℥ xiv.

M. Sig. ℥ i. in a tumbler of iced water, every morning upon rising.

Should, however, one dose prove insufficient, he directs that two or three may be taken with advantage.

If any disturbance of the nervous system is present, potassium bromide is given in doses of gr. v-x., three times daily.

As a rule, DR. THOMAS finds that the appetite and digestion require special attention, as dyspepsia with its group of symptoms is usually present in these cases. In such instances, he recommends the following tonic, which, from his long experience, has proven of the highest efficacy.

℞. One rennet, washed and chopped.

Vini xerici.	Oi.

Macerate for twelve days, then decant, filter, and add:

Acid. nitro-muriatic. dil. .	ʒ ii.
Tinct. nucis vomicæ . .	ʒ ii.
Bismuth. subnit. . . .	ʒ ii.

M. Sig. One tablespoonful in a quarter of a tumbler of water, before each meal.

This prescription, he advises, combines the tonic properties of nux vomica, and the peculiar alterative effects of bismuth, together with a fluid which resembles the gastric juice, and in many instances of habitual indigestion, he has derived the most satisfactory results from its use.

Concerning local applications, he advises that the cervix should be irrigated every night and morning by warm water thrown against it. This should be continued for ten or fifteen minutes, but without fatiguing the patient, and to the water may be added glycerine, infusion of slippery elm, tincture of opium, etc.

Under this general tonic plan of treatment, together with soothing injections, if carefully persisted in, DR. THOMAS finds that in many mild cases all complaints on the part of the patient will cease, and a cure be gradually effected. Should, however, this result not follow, or should the cervical glands be deeply involved, he then resorts to direct local applications through the speculum.

If the external os is contracted, he snips the external fibres with scissors for an eighth of an inch, touches the raw surfaces with silver nitrate to prevent union, and then keeps plugs of carbolized cotton in the canal for a week. Or, he advises, dilatation may also be accomplished by metallic sounds, or by a sponge or seatangle tent, although the former method is greatly preferred by him, as it is painless, perfectly effectual, and free from danger. After dilating the canal, he then proceeds to cleanse it thoroughly. The plug of tenacious mucus is sucked out by means of a hard rubber syringe; or if the

material is purulent, a stream of water may be thrown against the cervix, followed by suction, or a cotton-wrapped rod employed to remove it. A dry sponge, fixed in a holder, is also considered very efficient by him, for removing the characteristic plug of mucus. But in all cases, he insists, the complete removal of this material must be secured, otherwise he believes a cure is often prevented.

After this has been accomplished, should the case be one of short standing, he advises that the cervical canal be painted over with a strong solution of silver nitrate, or compound tincture of iodine, carbolic acid solution, etc. Or, if a solid caustic is preferred, silver nitrate may be used with advantage. Or Sims' slide applicator may be employed.

In cases where any and all means of treatment prove unavailing, DR. THOMAS advises that but one resource remains, viz.: to destroy, or remove, the diseased glands. For this purpose, he considers fuming nitric acid one of the best agents.

This he applies carefully to the canal, by means of cotton wrapped around a silver probe; after which a stream of cold water is projected against the cervix, and a wad of cotton soaked in glycerine applied. Then, in from ten to fourteen days, a slough forms, after which the surface is painted over twice a week with silver nitrate, gr.xx–ʒ i.

Or, in these very obstinate cases, he has resorted to the use of the cutting steel curette, with sufficient force to remove the arbor vitæ and mucous glands from the os internum to the external os. This may be required to be repeated in two or three weeks, and possibly a third time, but by this means he has succeeded in curing cases which had resisted all other measures (except the destructive caustics); and, from his extensive experience, he recommends this operation with the highest satisfaction.

In cases of *chronic corporeal endometritis*, besides the constitutional measures for improving the general health of the patient, etc., DR. THOMAS directs that all pressure upon the fundus uteri by clothing be removed, that coition be limited, all violent exercise be avoided, and, if necessary to afford rest to the organ, that a pessary be employed. If displacement is present, it should be rectified. If the cervix is lacerated, this should be repaired. And if subinvolution or enlargement of the uterus exists, he directs that small doses of ergot be administered regularly.

Regarding applications to the uterine cavity, in his experience the results are not very promising; hence, as a rule, he has given up their general use, rarely making applications above the internal os. Concerning intra-uterine injections, this has already been fully entered into by him elsewhere.

DR. J. W. MCLANE cautions, in cases of *acute endometritis*, against introducing a probe or a speculum unless necessary. The patient, he advises, should be kept quiet in bed, and not permitted to get up even in answer to the calls of nature. For the relief of pain, opium is given in doses of gr. i. every two or three hours; this also affords quiet and diminishes the inflammation. In its administration, he usually prefers to use it as a rectal suppository, carrying it up until about opposite the uterus. Aconite may also be called for by the pulse and temperature, for a day or two; this he considers best administered with liquor ammon. acetat.

For local measures, he injects hot-water into the vagina three times daily, at least a gallon at a time. This, he advises, acts as a poultice, and, in addition, a flax-seed poultice, covered with oiled silk, may be placed upon the abdomen. No astringent injections are called for.

The diet should also receive careful attention, be made fluid in character, and all over-loading of the bowels avoided. Constipation should also be prevented, but DR. MCLANE cautions against the use of cathartics, and directs that the bowels be relieved every two or three days by enemata.

In *chronic* cases, DR. A. S. HUNTER never uses nitric acid, either within the uterine cavity, or in

the cervical canal. He believes that the existing cellulitis, if any is present, should first be considered, and measures adopted for its entire removal, before proceeding further; after which the condition of the uterus should receive attention. If sub-involution is present, he usually resorts to hot-water injections, and the local application of glycerine; and is in the habit of applying a sponge tent, without curetting. He has the latter made with the utmost care, prepared antiseptically, and just before introduction, its surface is wet and covered with soap and then rolled in finely powdered salicylic acid. The tent is then allowed to remain in for forty-eight hours, the patient in the meantime being confined absolutely in bed, the bowels having previously been moved freely so that it is made unnecessary for her, during this period of time, to rise for that purpose.

As a result of this treatment, in many cases, after the tent has been thus applied and removed, the catarrhal discharge has ceased entirely, and with it the condition of subinvolution has also disappeared. Should these means of treatment fail, however, he then resorts to more active measures.

In cases where anteversion is present he employs tents, and after removing thoroughly, with the curette, the degenerated mucous membrane of the uterine cavity, wiping away all the blood, and removing

every particle of the secretion, DR. HUNTER applies the strongest solution of carbolic acid, and from this course of treatment the results have been most gratifying.

DR. L. WEBER believes that there is an undoubted connection between these intractable chronic catarrhs, and the general condition of the patient; but he considers the connection between this local condition and the scrofulous or tubercular diathesis, more intimate than is the case with gout and rheumatism. He also believes that a large proportion of the cases of this disease follow early abortions. Hence, he advises the importance of attention to the general condition of the patient.

The treatment which he has adopted for several years, consists in dilating the internal os with the tupelo tent, the thorough use of the curette followed by the mitigated nitrate of silver, making a thorough application to the mucous surface; for this purpose ordinarily employing Lallemand's porte-caustique. By this method, DR. WEBER has not seen any disagreeable results follow, but, on the contrary, great benefit.

UTERINE DISPLACEMENTS.

Concerning the treatment of displacements of the uterus, in the opinion of DR. P. F. MUNDE, the point seems to be to make out what is the normal position of the uterus, after which the abnormal condition may be understood, and remedies found for it. He does not consider that the *anterior displacements* demand mechanical treatment, as a rule, by means of intra-vaginal pessaries, with or without abdominal support, unless there be combined with such displacement, whether anteflexion or anteversion, a certain amount of sinking of the uterus, so as to produce dragging pains upon the uterine ligaments, and pressure upon the bladder; then such a uterus needs a support. Also, he does not believe it impossible to lift up the fundus in a case of anteflexion without a stem pessary. On the contrary, by the use of Thomas' cup pessary, he has raised the fundus gradually, month by month, by lengthening the anterior portion of the cup, until after a while the anteflexed uterus could be raised until it was nearly straight. But, as a rule, in order to straighten an anteflexed uterus, he

thinks it necessary to put the stem pessary into the cavity of the organ. To be sure, he cautions, the risks are quite equal to the benefits, but, he advises, if the patients can endure the stem, they will improve; while if they cannot, and this, unfortunately, is the rule, no other method will cure them.

For cases of simple anteversion, however, he advises, Thomas' open cup pessary works better. Therefore, to straighten the uterus permanently (in anteflexion), DR. MUNDE employs instruments to expand it, such as tents, etc.; but other efforts than this are also resorted to. The only means to retain a flexed uterus in an absolutely straight position, he again advises, are stem pessaries; but these instruments can generally not be borne, because they cause pain, and eventually acute inflammation of the uterine adnexa, if allowed to remain. Dr. Emmet calls them the invention of the evil one; and Dr. Goodell, of Philadelphia, says they are most excellent instruments *to watch*, and no doubt this is true.

But when he uses a stem, he always attaches a string to it, and instructs the patient, if she has pain which is continuous in character, to remove it. He mentions that Dr. Thomas has devised a series of vaginal pessaries for use in these cases, which are by far the best and safest instruments at command. Yet it must be remembered, however, that these are

chronic cases, that they must be treated a long time, and with great perseverance; and, if so treated, ultimately good will result. He therefore makes it a rule always to tell the patient that she is wearing a pessary, and show her how to remove it, in case it gives her pain.

Regarding *retro-displacements*, referring chiefly to retroflexion, DR. MUNDE finds that few pessaries work well. In his experience, however, one of the modifications of Hodge's pessary answers the purpose as well as any other, as the uterus having been first replaced, he finds in this pessary a lever action upon the posterior surface of the uterus, which keeps the fundus anteverted; and he also believes that the backward elongation of the vaginal vault by the pessary, assists the lever action by drawing the cervix toward the sacrum. Also, when using a retroflexion pessary, he always directs the patient to assume the genu-pectoral position, at least once a day, and when the instrument is removed.

But, after abundant experience, he feels compelled to admit that, while ordinary uncomplicated cases of retroversion are easily treated by replacement, and a proper pessary, no form of uterine displacement has given more trouble than retroversion with impaction or adhesion of the fundus; or retroflexion of a soft, flabby uterus.

In cases of *prolapsus uteri*, the treatment is obvious. DR. MUNDE first endeavors to replace the uterus and keep it in position.

The chief trouble with all pessaries, he advises, is that if one firm enough to furnish adequate support is used, it acts as an irritant; while if soft enough to be devoid of this objection, it does not furnish support; so that he finds it necessary to employ external support, by means of bands and girth. But, he cautions, despite all that can be done to render pessaries endurable, they are liable to cause abrasion, ulceration, and hæmorrhage.

In some cases, he uses nothing but a tampon of cotton soaked in tannin and glycerine or water, previously placing the patient in Sims' position. An objection to this is, however, that it is necessary to remove it every twenty-four or forty-eight hours, for which purpose a string is attached. But it is kept in position by a simple T bandage, is a great comfort to the patient, and not only keeps the uterus up, but the tannin eventually improves the contractile force and, with it, the retentive power of the vagina, so that it is also curative. If practicable, he also takes the strain off the stretched ligaments and tissues, and allows them to regain their natural tonicity by proper position.

Concerning uterine displacements in general, the

following conclusions arrived at by DR. MUNDE, he formulates thus:

I.—Recent displacements of any variety, are the only cases which offer a fair chance of complete recovery by any of the mechanical means at our disposal.

II.—Of these means, pessaries are the most convenient for temporary relief, but only in a comparatively small number of cases does permanent cure result.

III.—The best curative means of support of the displaced uterus, is probably the systematic and intelligent use of vaginal tampons, impregnated with a mild astringent solution.

IV.—Posture, while excellent as a means of relaxing the uterine supports, and relieving pelvic congestion, is by its inconvenience at best but a means of temporary relief.

V.—Permanent relief, *cure*, can be expected, and will be obtained, only when the displacement is of recent origin, especially when it has been produced by some sudden physical shock; or when the complete tissue-metamorphosis accompanying puerperal involution, aids in restoring to the uterine supports, and the uterus itself, their original and healthy tone.

This fortunate occurrence, he advises, must be looked upon as decidedly the exception, since the

favoring circumstances above mentioned are but rarely met with, or the displacement is seldom recognized at a sufficiently early date to permit of a perfect restoration to health.

VI.—The most favorable period, therefore, for the treatment of an uterine displacement, or distortion, with the view to a permanent cure, is within one or two weeks after delivery, before the woman has left her bed.

VII.—The excitation of a certain amount of plastic exudation in the walls of a flexed uterus may, if kept within bounds, result in the permanent straightening of the organ. This may be accomplished by rapid dilatation, or by the protracted wearing of stem pessaries; but permanent success will at best be rare.

VIII.—The protracted wearing of astringent vaginal tampons, introduced daily, offers for some cases of ante- and retro-displacements an excellent, and for most cases of procidentia, almost the only efficient and safe remedy for the displacement, far superior to all steadily worn hard or soft pessaries. A procidentia of uterus or vagina may even be cured by several months of this treatment, if the affection be not of too long standing.

IX.—While permanent cure is only occasionally met with, so much relief is afforded by pessaries and

other mechanical supports and methods already mentioned, that they should in no case be discarded unless all treatment be contra-indicated.

X.—Electricity, if rationally and scientifically applied for a sufficiently long period, offers chances of cure in comparatively recent cases, which call for a more thorough and persistent trial of the method.

XI.—For prolapsus uteri et vaginæ, unless of quite recent origin, an operative constriction of the vaginal canal and a restoration of the relaxed or destroyed perineum to its normal state, is the only sure means of cure, and even for this affection, the unfailing method remains still to be discovered.

XII.—The *cure* of a flexion by operative (bloody) treatment is impossible; the canal may be made comparatively straight by a division of one or the other or both lips of the cervix, but the flexed shape of the organ still remains. And, he advises, it is by gradually increasing elevation of the fundus by a vaginal pessary (best, Thomas' cup), after delivery, or by the protracted wearing of an intra-uterine stem, can, in a small proportion of cases, a permanent cure be effected.

Also, so far as the use of pessaries are concerned, DR. MUNDE gives the following *résumé* of rules:

I.—Always be sure of the diagnosis, of the nature,

and of the degree of the displacement before resorting to a pessary.

II.—Always replace the uterus before applying a pessary. This applies particularly to retro-displacements. It is well to replace the uterus repeatedly, every day, or twice daily, for several days before introducing a pessary. Also, the replaced organ may be supported by a cotton tampon in the interval, if it is desired to distend and toughen the vaginal pouch; or the object of relaxing the abnormally stretched uterine ligaments may have been obtained by the mere repeated replacement.

III.—Never insert a pessary when there is evidence, by the touch, of acute or recent inflammation of the uterus, or when pressure by the finger on the parametrium (where the pessary is to rest) gives decided pain.

IV.—When the uterus is not replaceable, that is to say, when adhesions bind the fundus down, use great caution and discrimination in deciding whether an attempt should be made, and is justified by the symptoms, to elevate the fundus by manual or instrumental means, or whether the elevation should first be tried by the gradual use of a pessary (this applies only to retro- and latero-versions). If neither is to be recommended, do not introduce a pessary until local alterative and absorbent measures have effected a resolution of the adhesions.

V.—Always choose an indestructible instrument, if possible. This does not apply to prolapsus uteri.

VI.—Always measure and estimate the vagina carefully before choosing a pessary, and be careful to adjust the pessary in every particular, (regarding size, curve and width), to that particular case, as no two vaginæ are exactly alike.

VII.—If the vaginal pouch is not sufficiently deep to accommodate a pessary, (anterior pouch for ante-displacements, and posterior pouch for retro-displacements), defer the attempt to fit a pessary until the pouch has been deepened by daily tamponing with cotton, or by the upward pressure of a Cutter or Thomas' vagino-abdominal supporter. Or the pouch may be gradually deepened by using first a small (slightly curved in retro-displacement) instrument, and then gradually increasing its size (or curve) until the desired size and shape for permanency is reached.

VIII.—Never leave a pessary in the vagina which puts the vaginal walls to the stretch, or which does not permit the passage of a finger between it and the wall of the vagina. This does not apply to prolapsus uteri.

IX.—A vaginal pessary which projects from the vulva, is displaced.

X.—A pessary which gives pain, must at once be replaced by one that is painless.

XI.—A well-fitting, properly-chosen pessary should not only give no pain, but should be a direct source of comfort to the patient.

XII.—Always examine a patient on her feet after introducing a pessary, or, when it is desired, at her return, to ascertain its efficiency in sustaining the uterus during walking and exertion.

XIII.—Always tell the patient that she has a pessary in her vagina, or she may not return in spite of your directions, and the pessary may remain for years, to her ultimate great discomfort and danger.

XIV.—Always tell the patient to return within a week after the first introduction, in order that the position and working of the pessary may be looked after, and that if it does not suit, it can be removed and a better one inserted. Tell her that several trials and various instruments may be required, before one is found which she can wear permanently, also, let her return for inspection once every four to eight weeks, as the case may require. Tell her that if she fails to do so, the pessary may cause ulceration, for which treatment will be needed.

XV.—Tell the patient she will need to wear the pessary for months, perhaps years, before a recovery can be expected.

XVI.—Never introduce a pessary which the patient cannot remove herself.

XVII.—Tell the patient to remove the pessary herself if it gives pain, and show her how to do it. When she has removed it, let her present herself at once for examination.

XVIII.—Tell the patient to use daily vaginal injections for cleansing purposes. If she notices profuse discharge, add astringents; if the discharge is sanguineous or purulent, let her come at once, as the pessary has probably caused abrasion.

XIX.—Tell her on removing a pessary to test the result; that the permanence of the benefit obtained therefrom cannot be determined for several days or weeks.

XX.—Always direct the patient to relieve all superincumbent pressure on the pessary by a proper support of the skirts; and, if the displacement be anterior, aid the internal supporter by an abdominal (supra-pubic) pad.

Finally, DR. MUNDE advises, all pessaries may be introduced in the knee chest position, when it is desirable or possible to replace the uterus only in that position. A Sims' speculum elevates the perineum, the air enters and expands the vagina, and the pessary (chiefly in retro-version and prolapsus) is introduced by touch and sight, and the patient laid over upon

her left side. For aggravated retroversion, and for prolapsus of ovaries or uterus, this position he finds offers many advantages over the left semiprone decubitus. He also cautions that care must be taken to remember that the position of the patient is reversed, and that the pessary must be introduced accordingly.

DR. WM. T. LUSK advises that in using Simpson's sound to replace a *retroverted* or a *retroflexed uterus*, it should first be bent to the direction of the canal, and then introduced, under the guidance of the finger, to the os externum, and into the uterine cavity. Then, by causing the instrument to revolve slowly, the uterus is brought forward into its natural position. He calls attention to the opinion of Dr. Sims, who says that the sound should never be turned in the uterine cavity, for as the distal end then describes a radius of two and one-half inches, it is liable to injure the intra-uterine tissues. This DR. LUSK advises, is true if the rotation be improperly made at the handle, but as ordinarily performed by him, viz.: by sweeping the handle in a wide circle, so that the end of the instrument is made to rotate upon its axis, it is difficult to see what harm can result from its employment as a redressor. After turning the sound in the uterine cavity, also, the handle should be depressed to carry the uterus for-

ward into its proper position. But, though he has never seen any harm come from this method of replacement, yet as it is reported to be not devoid of danger, and as there are better methods at disposal, he rarely uses this one at the present time.

The uterine repositor devised by Sims, is considered by him to be a very ingenious one. At a point about two inches from the end, it is furnished with a joint fixed, on a pivot, to a ball or disk. The extremity can be set by a spring at any desired angle, and can then be passed into the uterine cavity. If the spring is withdrawn and the instrument depressed, pushing the mouth of the womb downward and backward into the posterior cul-de-sac, the uterine stem revolves forward and carries the womb with it into the normal position. But the objection to this repositor, he advises, is, that it is hard to introduce, and does not work so well in its action as in demonstrating it.

Another method employed by him of replacing the uterus, consists in placing one hand on the abdomen above the symphysis pubis, and pressing steadily downwards until the hand comes in contact with the sacrum, while with two fingers of the other hand introduced in the vagina behind the cervix, the uterus is raised upward. The upper hand then seizes the fundus and directs it forward, while the

cervix is pressed simultaneously backward. By this conjoined action of the hands, DR. LUSK finds that replacement may sometimes be effected without difficulty. This method, however, though mentioned in all treatises on gynæcology, is not as easy as one would think from the description. To use it successfully, he advises, the abdominal parietes should be lax, and, in most cases, the method causes pain and leads the patient to resist all efforts by contracting her abdominal muscles.

A third way of replacing the uterus recommended by him, consists in seizing the cervix with a tenaculum and drawing it downward, then lifting the fundus with a sponge probang, introduced into the vagina along its posterior wall, and, at the same time, with a second sponge placed in front, pushing the cervix backward towards the sacrum; thus the uterus is made to rotate like a wheel upon its axis. This, it is cautioned, is not always so easy a procedure as might be supposed from the description, for the weight and pressure of the intestines resting upon the anterior surface of the displaced fundus, must be encountered before the uterus can be pushed into its proper place.

But the plan which DR. LUSK resorts to in most cases is, he thinks, by far the best. It consists in placing the patient in the knee-chest position. Let

her first kneel, he directs, upon the edge of the table, and then bend forward until the chest rests upon the table, thighs perpendicular, with the arms drooping over the edge, and with the head turned so that the cheek rests on the pillow. While in this position the weight of the intestines falls from the uterus by force of gravity. In this way, he finds that it is remarkable how easily a retroverted uterus can then be replaced, when the fundus is lifted and pushed upwards by the finger in the vagina. For as soon as the organ is raised sufficiently, and the weight of the intestines is removed from the retroflexed organ, the uterus falls forward to its proper position. Therefore, in many cases, where the uterus seems to be fixed in its abnormal position so firmly that replacement seems impossible, and in others where the uterus is supposed to be held down by inflammatory adhesions, he finds that replacement becomes easy by this method after all others have failed.

In practicing this manœuvre, he considers it important to remember that no effective pressure upward on the fundus can be made, until the patient ceases to exert a counteracting force by contracting the abdominal muscles. For remember, he advises, in replacing a retroflected uterus, that in the first place the patient's position is important; next, not to be in too great a hurry; and thirdly, to persevere with

confidence in the eventual success of the manœuvre, and, finally, with these points firmly fixed in mind, he believes it certain to succeed in most cases. If not successful, however, in the first attempt, he directs the patient to go home and assume the knee-chest position herself, for five minutes every night and morning, and at the same time to separate the labia so as to allow air to fill the vagina. And sometimes he finds when the patient returns after three or four days, that the uterus is already in its proper place; and even when this is not the case, the difficulty previously experienced, of rotating the uterus forwards into position, is found to have disappeared.

DR. LUSK prefers this method to all others, although it is open to the objection of being a disagreeable position for a patient to assume. It possesses however, the great advantage, that as the uterus falls into position almost without assistance, no irritation or injury to the parts is caused by rough handling, and hence the usual precaution, of directing the patient to keep quiet for a few hours following replacement, can be dispensed with.

In the treatment of retroflexions, moreover, he considers it well to bear the etiology of the different forms in mind. In an acute case, resulting suddenly from a fall or jar, the organ, if at once replaced, will

usually remain permanently in position. But these cases are comparatively rare. Usually he finds that the dislocation backward results from a relaxed and flabby condition of the uterine tissues and appendages. These cases, therefore, need preliminary tonic treatment. The nutrition should be improved by iron and quinine. Also, good results are, he finds, often obtained by a sojourn among the mountains, or at the sea-shore, where the sufferer can get an abundance of pure air. At the same time she should daily irrigate the vagina with injections of cold or tepid water. Following such injections a reaction takes place; more blood is sent to the pelvic organs, and their nutrition is thereby improved, the cool water acting as a stimulant, which tends to relieve the atony of the uterine tissues.

Regarding pessaries, he finds that, as a rule, not much is accomplished at first, by their use in cases of relaxed uterine tissue, for the fundus is apt to bend over the instrument. But if with a patient who cannot tolerate pessaries, or where pessaries fail to give the needed support, he advises that an abundance of time can usually be had to spend upon the case; during which he can generally do much good by packing the vagina daily with pledgets of cotton soaked in glycerine. Certain gentlemen recommend this method for all their cases, but DR. LUSK be-

lieves that the uterus should first be returned to its proper position, and the cotton should be packed in the vagina in front of the cervix, so as to retain the uterus in place. Then, after such daily treatment, in the course of five or six weeks, it is remarkable, he finds, what an improvement will have taken place. The great objection, however, to this plan is, that but comparatively few patients are willing to come to a physician's office daily for a sufficient time to reap any improvement.

Again, in cases where, in childless women, cervical catarrh causes distension of the cervix, and secondary dilatation of the uterus is the cause of displacement, he directs that the treatment should be inaugurated by dilatation of the os externum. Then he finds that introducing the uterine sound to replace the organ, often acts as a stimulus to uterine contraction. But sometimes, after stretching the cervical canal with the dilator, good results are obtained by the injection of a few drops of glycerine into the uterine cavity; then withdrawing the glycerine with the syringe, after leaving it in contact with the uterine mucous membrane for a few moments, the injection serving to excite the uterus to contract, so as to close its abnormally dilated cavity.

In cases where the uterus is itself congested, in-

flamed, and very sensitive, where the uterine supports are relaxed, and where the weight of the uterus is increased, the first thing to be done, he advises, is to diminish the excessive tenderness, by restoring the uterus to its normal position, and then relieving the congestion by the use of hot water. Vaginal injections of hot water, he believes, will do more for the pain and tenderness than any other single remedy.

Then, when most of the sensitiveness has disappeared, the next thing required, DR. LUSK advises, is to retain the uterus in place, and for this purpose some form of pessary will be necessary. Dr. Meigs' ring pessary, he finds, does good by restoring the circulation in the uterus, but it is apt to cut deeply into the vaginal tissues. Dr. Peaslee's he considers less harmful, that it acts well in some cases, especially where there exists no posterior vaginal cul-de-sac. Dr. Thomas' bulb pessary has a rounded bar at the fundal end, which passes up behind the uterus, and fills the posterior cul-de-sac of the vagina; and where a pessary is to be worn for a long period of time, he advises that no other form, in his experience, is so likely to be tolerated by the patient. Besides this, it possesses the advantage of more effectually preventing the recurrence of displacement, than the other models. Some practi-

tioners, however, prefer to shape their own pessaries as needed, employing for this purpose rings of copper wire covered with rubber, and adapting each pessary to the special case before them.

Regarding anteversion pessaries, he mentions, that the instrument which Dr. Thomas devised some years ago, has, in his hands, always cut quite deeply into the vaginal wall, if worn for any length of time. DR. LUSK also refers to a case in which the patient wore a Thomas' anteversion pessary for something more than a year, and then it was with very great difficulty that it could be removed, so deep had it become imbedded in the tissues. Furthermore, two cases are cited by him, in which fibroids developed just at the point of pressure made by the bulb.

DR. M. A. PALLEN calls attention to certain cases of marked *retroflexion*, where stricture of the rectum and chronic rectal catarrh have resulted, with frequent mucous passages. General treatment is prescribed by him, and much benefit is derived from the use of electricity, applied twice weekly and continued for several months. These patients, also, are naturally and habitually constipated; therefore he keeps the bowels well open by enemata, and has the woman daily placed in the genu-pectoral position, and the uterus thrown well forward until a position

is obtained for it in which it can be retained by a pessary. He also considers it a most excellent plan of treatment, in these cases, to fill the rectum with large quantities of hot water, thus expanding the folds of the mucous membrane, and thoroughly washing out the very bottom of the rugæ and fissures, which are usually present, and cleaning off whatever pus may be found there. After this has been thoroughly accomplished, he then touches the eroded or ulcerated spots with nitric acid, or silver nitrate, or sometimes using the milder non-caustic astringents, employing for this purpose a Sims' speculum. Under this treatment improvement has rapidly followed.

In cases of *procidentia uteri*, the following is DR. PALLEN'S method of operating for the relief of this condition, and also of all degrees of laceration of the perineum. He has employed it with success, during the past nine years, in sixty cases of laceration down to the sphincter, in three of rupture through the sphincter into the rectum, and in nine of complete procidentia of the uterus.

On either side of the vulva he makes a flap incision, embracing the transverse perineal skin, which is dissected up; and, instead of being entirely removed, as in the common operation, the flaps are so folded, raw surface to raw surface, as to make a shelf

on the wall of the vagina, upon which the uterus rests, and at the same time serving the purpose of thickening and strengthening the perineal body. Fine silk sutures are used for the flap, which cut out upon the vaginal surface, and deep silver wires for the perineal structure proper. No tissue is removed, and it is almost impossible, after the operation, for the uterus to fall. By this procedure, he advises, thus far all his procidentia patients have been cured, and no sign of relapse has been observed. Moreover, he cautions, the higher the dissection between the posterior vaginal and the anterior rectal walls, the stouter the perineal cone, and the farther forward is the posterior vaginal wall thrown up on the vulva.

Concerning *pessaries*, DR. PALLEN urges that if not perfectly adapted to each particular case, serious injury, rather than benefit, follows their use. Therefore, he advises, always measure the length of the vagina first, and then map out the shape of the subpubic space. After this, he then greases a vulcanite ring well, and moulds it, in the flame of an alcohol lamp, to fit the vagina. This, he insists, is a matter of very great practical importance, and he finds that the best of practitioners often fail to fit a patient with a pessary, simply because they fail to map out the vagina.

Also, he cautions, no pessary will do the least good, unless the uterus is first returned to its proper position. And if a pessary is not properly adjusted, or is not the right size, there is constant jarring of the uterus as the patient walks, which leads to many uterine disorders, among them necrosis of the neck of the womb.

Moreover, he objects to pessaries for constant use. A pessary is, in his opinion, nothing more than a splint, and should be used as such, not worn continually. The less a woman has in her vagina constantly, the better she is off. A dislocated womb no more than a dislocated limb, should constantly have a splint.

The principle of the pessary, he advises, of whatever form it may be, is to preserve the parallelism of the vaginal walls. In applying it, he directs the patient, after it is in position, to sit down suddenly, to cross her legs; in fine, he has her go through every variety of muscular action, and teaches her to remove the pessary herself. The patient, he advises, should not feel that she has a pessary there.

In conclusion, DR. PALLEN cautions against ever using a pessary that is so long that it presses on the anterior promontory of the sacrum, or interferes with the bladder or rectum. Twenty-five out of every hundred pessaries are, in his estimation, too large.

DR. T. A. EMMET believes, concerning the treatment of *anteflexion*, that this subject can be greatly simplified by recognizing the fact that, in most cases, this condition is due entirely to obstruction of the circulation outside the uterus; as a rule, to inflammatory action caused by cold. When accompanied by dysmenorrhœa, the latter, he advises, is not a mechanical affection, but is due to faulty nutrition and obstruction of the circulation, and is an affection of the general system.

Therefore he considers it to be of the greatest importance to recognize this as a cause of flexure, from the simple fact that malpractice is seen to no greater degree than in the treatment of such conditions, by dividing the cervix, dilating the canal, etc.; treating the affection as if it were the cause. And this (inflammation in the pelvis somewhere being the chief cause), he advises, also explains why so uniformly trouble results from surgical procedure for its relief. For, if attempts are made to raise the uterus before the pelvic inflammation is removed, a fresh attack will be set up.

This doctrine, he advises, is applicable to the treatment of all versions; and it is due to this fact, he finds, that there is such a difference of opinion in regard to the use of pessaries in the treatment of uterine displacements. For, whenever anteversion is

treated, and inflammation reduced to a point at which it is regarded as safe to undertake to restore the uterus to its normal position, whatever the mechanical appliance is that may be employed, it simply relieves the patient by raising the organ up to where the circulation can be restored. Sometimes, also, he finds that he can antevert the uterus still more than it is already anteverted, and not give entire relief.

Hence, DR. EMMET advises, the principle is not simply to correct the position of the uterus, so far as flexion or version is concerned, but to raise the organ up in the pelvis to a point at which the circulation can go on unimpeded.

DR. W. M. CHAMBERLAIN believes, while admitting that anteflexion depends upon a greater or less amount of pelvic inflammation, that certain cases of anteflexion, but more especially of anteversion, exist, which can never be cured by any mechanical appliances, because they depend essentially upon an empty state of the connective tissue. And in many bedridden women he believes that the displacement continues because they are bedridden, and that the one means of relieving them is to restore the normal condition of the surrounding connective tissue system.

AMENORRHŒA.

In the treatment of this condition, DR. T. GAILLARD THOMAS directs that the cause should be discovered, and, if possible, removed. Should the uterus be absent, a sufficient amount of blood to afford relief to the attending symptoms should be abstracted from the arm. If the uterus be found in a rudimentary or atrophied condition, local stimulation is resorted to with the hope of developing it. For this purpose, he advises that the organ should be fully distended by a tent, at short intervals, thus exciting an increase of nutrition. Or, an intra-uterine galvanic pessary may be kept in the organ, and he finds that an extraordinary amount of development may often be secured by persevering in this practice; although it must be continued for a long period of time.

Where anæmia, plethora or chlorosis are found to be the cause, these receive appropriate treatment by him. In cases of plethora, venesection is practiced, a rigid diet insisted upon, together with plenty of exercise, fresh air, etc. If anæmia or chlorosis are present, a change of air is prescribed, with rich,

nutritious food, exercise, iron, tonics, etc. In case of wasting disease, such as tuberculosis, etc., this, he advises, and not its attending symptom, should receive consideration.

If the nervous system is found to be in an atonic state, DR. THOMAS directs that a general tonic course of treatment be resorted to. In this direction, he especially recommends exercise, both on foot and horseback, rowing, sea-bathing, nutritious food, together with nerve tonics, such as strychnia, quinine, electricity, etc. For the constipation which is, as a rule, always present in these cases, a combination of aloes, iron and nux vomica will, he finds, favorably affect the nervous disorder and its resulting symptoms.

Moreover, he advises that a systematic treatment of the patient's constitutional disturbance should be adopted and persevered with.

Then, after the general health of the patient has been improved, he resorts to local stimulation with much benefit. Among these, he considers the sound, tents, cupping, electricity, baths, and stimulating enemata as most serviceable, as in their action these measures act favorably upon the uterus, as well as, sometimes, exciting the process of ovulation by their stimulating effects.

In using the sound, he advises, this should be

passed up the fundus once daily, for three or four days before the expected menstrual flow. Tents of tupelo or seatangle may also be used at the same periods. For dry-cupping the cervix, a marked hyperæmia may, he finds, be caused by the use of the hard rubber cylinder syringe. Electricity, however, he considers of very great value. In using this he applies one pole over the lower part of the spine, and the other over the hypogastrium, or in contact with the cervix. For enemata, to excite the menstrual flow, warm water with the addition of sodium chloride, aloes, or soap, is considered by him to be of excellent service. Hip-baths may also be resorted to, but, he advises, they must be prolonged, and be as warm as the patient can bear them. Besides this, injections of warm water may be thrown into the vagina, and against the cervix, to the amount of one or two gallons at a time.

Finally, DR. THOMAS advises, where repeatedly and after every resort, thoroughly persisted in for many months, has been tried, no signs of menstruation appear, it is useless to continue the treatment, and it is often better to leave the case to nature.

In cases of amenorrhœa where, as is usually the case, anæmia and chlorosis are present, DR. J. W. MCLANE prescribes iron in small doses, as a food,

diminishing the amount when the fæces become blackened. A preparation is also selected which will not produce constipation or dyspepsia. The citrate of iron, gr. v., is much preferred by him, given in combination with the bicarbonate of potassium and quinine. This he combines at the time of taking, and adds to it a teaspoonful of fresh lemon-juice, the patient drinking it while effervescing.

He also directs that the patient should be prepared for a course of iron. Potassium iodide, with some simple bitter, such as calumbo, is administered, and the bowels made to move every day by increasing peristalsis. Watery catharsis should, however, be avoided, as it causes depletion. Pills of aloes and myrrh are recommended by him, giving gr. ss. of aloes every night and morning. Or, aloine and strychnia, the latter in doses of gr. $^1/_{24}$–$^1/_{50}$, he finds very excellent for this purpose. Or, belladonna in doses of gr. ¼. Ipecac is also used by him, with the aloes, as a stomach tonic, and Blaud's pills are also considered highly efficient.

In addition to these measures, he advises that the patient should take hip-baths at the time there should be a flow, and, in the meantime, should have plenty of out-door exercise, such as horseback riding, sea-bathing, and, in the case of girls, should remain away from school for a period. Claret wine should

also be taken, and general treatment directed to the ganglionic nervous system.

In cases of secondary amenorrhœa, as after taking cold, etc., he does not consider it best to endeavor to bring on the flow, but directs that quiet and warmth in bed be secured, and small doses of opium administered. Then at the next period hip-baths are ordered, and small doses of aloes given.

Concerning emmenagogues, DR. MCLANE does not believe there are any, unless it be galvanism. No medicine, he advises, will cause ovulation in a physiological manner. When galvanism is employed, he places one pole low down over the back, and the other over the hypogastric region. The current is passed at the time of the expected flow.

MENORRHAGIA.

In the treatment of menorrhagia, DR. J. W. MCLANE first aims to stop the bleeding, and then searches for the cause. He introduces a probe into the uterus, or dilates the os with two or three tupelo or laminaria tents for examination. A wire curette is also employed for purposes of diagnosis as well as for curative treatment. Where there are fungosities, if the curette, after two scrapings, does not offer a cure, he then resorts to a very strong solution of silver nitrate, or pure fuming nitric acid, carried into the organ by means of a piece of cotton.

For medicinal treatment, he administers iron and strychnine, together with saline cathartics where there is plethora.

If visceral lesions, of the heart, etc., are present, he cautions against stopping the menorrhagia, as it may be nature's method of getting rid of the blood.

Concerning astringents, at the time of the loss of blood, he considers gallic acid superior to all others, as it is not constipating. This he gives in doses of gr. x. three times daily, in capsules, commencing on

the second day. In cases of subinvolution ergot is also administered in doses of gtt. xx.–xxx. of the fluid extract, thrice daily, in conjunction with quinine.

Besides these means of treatment, DR. MCLANE directs that the pelvis be raised to an elevated position, the bed made hard, cool drinks freely supplied, and hot water, in a rubber bag, be applied against the sacrum; this latter measure alone, he advises, will often succeed in arresting the flow.

DR. T. GAILLARD THOMAS cautions that, before proceeding to a course of treatment, it should be ascertained whether or not any treatment at all is necessary or required; that is to say, in some women a free or profuse flow at their menstrual periods is perfectly natural, and causes no injury.

When indicated, his treatment is directed, primarily to check the flow of blood. He directs that the patient be kept absolutely quiet upon her back, and that cloths wrung out of cold water be applied over the uterus, vulva, and thighs. Cool drinks (acid), such as iced lemonade, etc., are freely given, and all warm fluids strictly prohibited. The room should also be kept cool, the foot of the bed elevated, all conversation avoided, and the nervous system quieted by opium. Hæmostatics are also employed, such as gallic acid, and ergot, but more especially

tincture of cannabis indica, being preferred by him.

By this means of treatment, particularly in mild cases, he often finds that a cure is effected and nothing further is required.

In severe cases, however, these measures, he finds, rarely suffice. Here, the speculum is introduced and the vagina tamponed, which usually succeeds in arresting the hæmorrhage, except, in certain instances, where cancer of the neck is present. In these latter cases, he directs that the tampon be saturated with a strong solution of alum, or with a solution of the persulphate of iron, 1–4; or, instead of these, a small bag of powdered alum may be laid against the cervix and held there by a tampon; ʒ ii. of tannin may be placed freely in contact with the part.

While almost all cases will usually succumb, at least temporarily, to these measures, yet some require even a more energetic resort. In such, he directs that the cervical canal be dilated, and the cavity of the uterus be injected freely with the tincture of iodine, or a strong solution of alum.

If subinvolution is present, he finds the free use of ergot of marked value, not only as a palliative but also, it may be, as a curative agent. Viscum album is also employed by him with equally good effect, either alternately with, or instead of, ergot.

Furthermore, he advises, the occasional administration of an active purgative, or its continual use in small doses, is often of the greatest service.

Concerning the use of iron and quinine, he cautions that so long as this condition continues, it is adding fuel to the flames to give the patient iron or quinine. Iron, he finds, is the very worst thing that can be given to these patients, and this is a point, moreover, which he advises should never be lost sight of.

In all cases, however, DR. THOMAS insists that it should be always borne in mind that the chief reason why curative treatment so often fails, is because of its being directed to the existing disorder, and not to the disease which causes it; while, if this be discovered, its treatment is, in many instances, exceedingly simple and, at the same time, effectual.

In cases of menorrhagia due to retained placenta, DR. WM. M. POLK advises that the indication is to remove the retained portion of the placenta. If the cervix is too small for this purpose, so that the ordinary curette cannot pass, he then dilates it and takes away the piece of placenta with the curette. Or, if there are indications against dilating the cervix, he first uses palliative measures, and if the hæmorrhage becomes severe at any time, the tampon is employed, and, in the meantime, local applications are made

over the abdomen, for the purpose of relieving irritation due to cellulitis. Then, after the contra-indications have passed away, he dilates the cervix and follows this by the gentle use of the curette.

Regarding the use of viscum album in this condition, DR. P. F. MUNDE finds that in menorrhagia occurring in the non-puerperal state, this remedy often proves of valuable service. In obstetrical cases, however, although he has tried it in two instances, he has not, as yet, been thoroughly able to judge of its beneficial effects.

DR. M. A. PALLEN has never used viscum album in labor, but in a number of cases where menstruation has been excessive, sometimes amounting to menorrhagia, the patients being anæmic and flabby, he has found it of marked benefit in lessening the flow.

DR. WM. T. LUSK has employed viscum album during labor, and is perfectly satisfied that its utility, if it possesses any, is limited to but very few cases.

DYSMENORRHŒA.

In *neuralgic dysmenorrhœa*, DR. J. W. MCLANE directs his treatment toward relieving the pain, avoiding opium, however, unless, as sometimes happens, it becomes necessary and has to be resorted to while other remedies are acting. But, as a rule, he prefers the extract of cannabis indica in doses of gr. i., or the tincture in doses of m. xx–xxv., in combination with opium, camphor, and hyoscyamus. The following pill is a great favorite with him, in these cases:

℞.	Ext. opii	gr. v.
	Ext. cannabis indicæ . .	gr. x.
	Camphoræ	gr. xxv.
	Ext. hyoscyami . . .	gr. x.

M. Ft. pil. No. x.

Sig. Take one, two or three times daily.

Chlorodyne, he finds, also acts well. Asafœtida is also considered by him to be one of the best nerve tonics, and he frequently derives marked benefit from the use of a rectal injection containing asafœtida ʒ ii. in water ℥ ii–iii. Or particularly where there is

a tendency to spasm, suppositories of opium (the aqueous extract) and extract of belladonna, are employed with good effect.

In all cases, however, he advises that the cause of the disturbance be ascertained, and during the intervals between the attacks the treatment be directed to its removal. Fowler's solution, gtt. iii. thrice daily, after meals, will, he finds, often render excellent service in many of these patients. If chlorosis is present, this receives proper attention. Iron is given in small quantities and in a form to be easily absorbed; also cod liver oil. The patient should also try and change all her habits and mode of life, and, with this, change of air, as from the city to the country, and *vice versâ*, a sea-voyage, etc., are, he finds, productive of much good.

In addition to these means of treatment, he endeavors to keep the pain subdued for four or six periods with anodynes, and introduces a cold steel sound once or twice a month, usually about a week before the period of the flow. He also tries electricity externally, as in amenorrhœa.

In cases of *congestive dysmenorrhœa*, DR. MCLANE directs that every thing that will tend to congest the uterus be avoided. The arrangement of the clothing should receive proper attention. Coition should be forbidden, as it causes congestion of the

uterus, and if the patient becomes pregnant she will probably abort.

Hot sitz baths, he advises, should be given two or three nights previous to the flow, and, if the patient is plethoric, a little blood may be abstracted by scarifying the cervix, or applying leeches to the iliac region. He also cautions against permitting the pain to get beyond control. To prevent this, morphia is given hypodermically, or opium in the form of suppository. A suppository containing extract opii, gr. i., and extract belladonnæ, gr. i., he considers of excellent service; the patient can place it in the rectum during menstruation, or in the vagina just before that period. Or, iodoform is sometimes used with much efficacy.

Furthermore, during the period, he directs that the patient be kept perfectly quiet in bed; this is absolutely insisted upon. In the intervals, however, *mild* exercise may be taken, but all violent actions, such as the use of a sewing machine, or horseback riding, etc., should be rigidly abstained from. Also, for local measures during the intervals, he advises that large injections of hot water be practiced, just before going to bed.

In the treatment of *ovarian dysmenorrhœa*, DR. McLANE relieves the pain with morphia hypodermically, or with chloroform. Where the latter is

employed, he cautions that the physician should administer this himself, and never allow the patient to use it. The narcosis is then continued by Magendie's solution injected near the seat of pain. Then, in the intervals between the attacks, he aims to build up the nervous system by means of potassium bromide, in doses of gr. x., three times daily; or iron may be also given in conjunction.

In extreme cases, where all means of relief fail, he advises that the ovary should be removed.

In *obstructive dysmenorrhœa*, DR. MCLANE'S treatment is, of course, mechanical. The use of tents, sounds, etc., he considers a dangerous procedure. *Don't use either of them*, he advises. A small external os is, in his opinion, best enlarged with scissors, and no other cutting instrument should be employed for this purpose. Where, however, the entire length of the cervix is constricted, he introduces a speculum and employs the bistoury; but he cautions against the attending danger in cutting the internal os. After operating he introduces a glass plug in the cervix and holds it in place by means of a tampon.

Where the uterus is anteflexed, he endeavors to cure it with a pessary. If not successful in this resort, he then opens the canal through the posterior wall.

For the treatment of *membranous dysmenorrhœa* DR. MCLANE advises that little or nothing can be done, in these cases, beyond alleviating the pain by the administration of anodynes, in the form of suppositories, etc.

DR. FORDYCE BARKER considers two forms of dysmenorrhœa—one dependent upon the uterus itself, and the other ovarian.

With regard to treatment for these varieties, he places much reliance upon the efficacy of iron. Of this, the preparation which he usually prescribes is the lactate, giving gr. iii–v. three times daily, and generally associated with potassium chlorate. This treatment he begins about ten days before the menstrual period should appear.

Another remedy which is considered by him as almost specific in uterine dysmenorrhœa is apiol; but to get its good effects, he advises that its use should be commenced at least *two days before* the period should return, and kept up during the period. In administering it, he gives two capsules, usually after each meal.

He also directs attention to another class of cases, in which the flow is unattended by pain until it has continued for two or three days. Such patients are usually strong, of full habit, and complain of headache, vertigo, imperfect vision, etc., previous to the

period. These cases belong to the ovarian variety, and here he uses the bromides, preferring the sodium salt, beginning about a week before the period, and administering from gr. x. to gr. xv. in the middle of the forenoon, afternoon, and at bedtime. Apiol is also employed by DR. BARKER with much satisfaction in these cases.

DR. P. F. MUNDE advises that, in cases of dysmenorrhœa due to flexion upward of the cervix and body of the uterus, the only thing to do is to insert a stem pessary to strengthen the organ. He cautions, however, that stem pessaries are very good instruments to watch. The dangers attending their use are, the irritation produced on the uterus by the constant presence of a foreign body; a possibility of setting up endometritis and metritis; and, moreover, a further danger of peritonitis and cellulitis. But when employed, before its insertion he considers it a good plan to dilate the uterus first, by introducing a laminaria tent, and then give the stem a trial.

DR. T. GAILLARD THOMAS, in *neuralgic dysmenorrhœa*, first aims to discover the cause of the neuralgia, and then removes it. If the gouty diathesis is present, it should be treated by appropriate remedies. The skin, he advises, should be kept warm and active by wearing flannel during the winter months, and the patient should reside in a mild,

equable climate. Out-door exercise, horseback riding, etc., should also be taken, especially by those whose habits have been those of indolence and luxury. Chlorosis should be treated by iron and nerve tonics, fresh air, good food, etc. If plethora exists, a strict diet should be enforced, venesection practiced, and cathartics and other depletory measures resorted to. Malarial poisoning should be met by a change of residence, together with the administration of quinine and iron. In addition to these means of treatment, sea-bathing and a sea-voyage will, he finds, often accomplish much in this form of dysmenorrhœa, whatever be the cause.

Besides this, local measures, such as the passage of a sound to the fundus of the uterus, the use of tents, or the galvanic pessary, or the systematic employment of the galvanic current, are, in many instances, found by him to render excellent service.

For medicinal treatment, apiol is, in his estimation, foremost among the specific anti-neuralgic remedies. This he gives in doses of one capsule night and morning during menstruation. The tincture of cannabis indica, gtt. xxv. every four hours, while the pain is intense, or chloral hydrate in doses of gr. x. every eight hours, are both considered by him to be very beneficial. Or, where spasms are also present, suppositories containing extract of belladonna gr. ¼, are recom-

mended by him, to be repeated not oftener than once every eight hours. Or, asafœtida, he advises, is also an excellent remedy under such circumstances; of this he uses the tincture, ʒ ii–iii. in ℥ iv. of warm water.

In cases of *congestive dysmenorrhœa*, DR. THOMAS advises that, as in other forms, the source of the evil should be carefully sought for, and removed. In cases where the attack is due to exposure, he gives opiates, diaphoretics and sedatives, with marked effect. If the portal system is in a sluggish condition, mercurials are prescribed by him, and the daily habits of the patient made more active. Where the uterus is displaced, and this, in his experience, is the most frequent of all causes of congestive dysmenorrhœa, this should receive proper attention and support.

In the treatment of *ovarian dysmenorrhœa*, DR. THOMAS finds that change of scene and climate, with freedom from all anxiety, rest of mind and body, etc., will often accomplish much good. During the menstrual period, he directs that complete rest in bed be secured, or at least, perfect quiet, and maintained for three or four days afterward. Warm sitz baths and soothing vaginal injections are also prescribed by him. For internal use, he considers the free administration of the bromides of potassium and

ammonium far superior to other remedies; this should be commenced a week before and kept up until the close of menstruation.

Also, during the menstrual period, he cautions against the use of opiates, alcohol, and anæsthetics for the relief of pain, from the danger of creating a morbid taste. In their stead, he advises that the two sedative drugs which, in his estimation, are better than any others in this condition, are cannabis indica and viburnum opulus, combining the two together in administering them.

Galvanism is also recommended by him, in certain cases. This he applies three times a week, placing one electrode in the vagina against the ovary, and the other on the abdomen, and so passes the current directly through the ovary. In addition to this, hot water injections are practiced, and the skin over the painful region painted with the compound tincture of iodine. The best dietary and tonic treatment should also be secured.

Finally, DR. THOMAS advises, if after trying all means at disposal for a year or more without relief, he would then propose Tait's operation as a last resort, but allowing the patient to choose for herself.

STERILITY.

The treatment of sterility consists in the removal of its cause. While many of these are not easily remedied, and some are not capable of removal at all, in other instances the treatment is quite evident.

In the treatment of certain cases of sterility, DR. W. R. GILLETTE recommends the substitution for surgical relief of a *postural method of copulation*, as a means of restoring, when possible, the mechanical relations of the male and female organs in copulation, to a basis recognized as necessary to insemination and fecundation. This method consists in instructing the patient to have intercourse in a position with her hips well elevated upon a pillow, and that, immediately upon withdrawal of the penile organ, a napkin be held to the vulva firmly, and as long as possible; and that this recumbent position, with the hips highly elevated, be maintained for four or more hours.

By placing the woman thus, so as to flex the pelvis upon the body, he is able to secure all that gravi-

ty can afford in retaining the semen; and by closing the vulvo-vaginal orifice by the application of a napkin, the exit of some of the spermatozoa, which may possibly be thus directed to their natural office, is impeded.

In cases where the uterus is retroverted, and all means of restoration fail, or are impracticable, in supporting the organ and bringing the os in normal relations with the parts to receive the seminal deposit, he directs that intercourse be had only in the breast-elbow position, and that the patient remain in this position as long as possible after coition; that is to say, until she is fatigued. By this means he has been successful in securing an anteversion of the uterus by gravity alone, sufficient to permit the semen to be thrown upon the os and cervix in coition.

In presenting this postural method of copulation for the cure of certain of these distressing cases, DR. GILLETTE reminds that the essential condition for overcoming the sterility is that the spermatozoa shall be placed in such a position that they may reach the ovum; that is, that they shall be deposited in or near the os or cervix uteri. Hence, by the method recommended, gravity alone may correct certain physical deformities, which change the normal axes of the receptive organs of the female, and thereby direct the seminal fluid to its normal situation, and

retain it there until sufficient time has elapsed for it to complete its function.

In cases of *sterility due to pinhole os*, DR. T. GAILLARD THOMAS proceeds to slit up the cervix on each side with the scissors, and then cuts off the ends of both anterior and posterior lips, after which he adjusts the edges and brings the two lips together with sutures, by Sims' method, and then puts in a glass stem and leaves it in place while the cervical tissues heal about it.

In some cases of pinhole os, however, he finds that the cervix is not long enough to make an excision of it necessary. In such instances, he advises, it is necessary to make only the slits in the sides, and then put in a glass stem, with a pessary to retain it in place, when probably within six months the sterility will be cured.

In cases of *sterility due to retroflexion*, with long cervix and pinhole os, DR. THOMAS advises to begin the treatment by putting the patient on hot vaginal injections and laxatives, and then keeping her quiet till one menstrual period has passed. This will, he finds, give time for the congestion to diminish somewhat, and will afford the opportunity to watch the course of her menstruation.

He also uses the intra-uterine sound to replace the uterus, two or three times a week, if necessary.

Then, at the end of her menstrual period, he introduces a speculum, and, with a bistoury, cuts through the cervix by a posterior and two lateral incisions. The knife is passed up to the os internum and then cut outward, first to the left side for a distance of one-eighth of an inch, then to the right for the same distance, and then up and down posteriorly in the same way.

Having done this, he takes a glass stem, nearly straight, and pushes it through the cervical canal into the cavity of the uterus. Some difficulty, he cautions, may be experienced in pushing such a glass stem in for the first time it is tried, and if so, DR. THOMAS advises that the incisions in the cervix be cut a little deeper, and the stem then passed all the way up to the fundus. After this is accomplished an ordinary Albert Smith pessary is introduced, not to keep the uterus up merely, but also to keep the glass stem in place while the cervical tissue is allowed to heal around it.

He then directs that the patient be put to bed, and orders carbolized vaginal injections twice daily. Then, after she has been quiet in bed for three weeks, he takes the stem out; or, if she is menstruating, he leaves it in till after the period has passed, as it does not at all interfere with the process of menstruation, but, on the contrary, the blood

trickles out along the sides of the stem, while the uterus is kept erect and congestion prevented. If, after this, it is taken out, the uterus, he advises, will be found to keep its position, the congestion will have disappeared, the endometritis and leucorrhœa will be lessened, the spasm of the sphincter muscle will have ceased, and the narrowness of the cervical canal have been removed.

Then, when this has been accomplished, he directs the patient to go home, and return twice a week, at which periods he removes the stem, and, having put a small piece of cotton soaked in pure carbolic acid upon an applicator, he carries it through the cervix up to the fundus, and moves it about so as to coat over the whole endometrium with the acid. He never uses the tincture of iodine or alum as local applications to the uterine cavity, but he does use carbolic acid constantly, and he never has known any harm to come from it. After having made the application of carbolic acid, DR. THOMAS then returns the glass stem and the pessary.

This treatment is then kept up by him, with the hope that, by the end of eight or ten or twelve months, he can take out the glass stem and find that the uterus will now stay up by itself, without any support, and that the endometrium will be so improved in character, that the seminal fluid can

pass up without being destroyed, and thus fructify the ovum and produce pregnancy.

In the treatment of *sterility due to cervical catarrh*, with retroversion, DR. THOMAS first endeavors to put the uterus in place and retain it there by means of a pessary, so as to keep it in an upright position by mechanical influences, until it finally falls over forward of itself. The mucous secretion is then removed by syringing the vagina out with very warm water every night, after which the whole inside of the uterus is painted over with pure carbolic acid.

In his estimation this plan of treatment is the best that can be recommended.

FIBROID TUMOR OF THE UTERUS.

In the larger number of these cases, DR. T. GAILLARD THOMAS advises that the treatment should be merely palliative. That is to say, correcting the displacement of the uterus by the means already spoken of, or, in different cases, by the use of the bulb pessary, or other varieties in less obstinate instances; relieving the pressure by the aid of a pessary, together with an abdominal pad; and arresting the hæmorrhage, which, however, is often difficult to accomplish, by rest in recumbency during menstruation, hæmostatic agents, and the use of the tampon after a sufficient amount of blood has been lost to accord with ovulation, say after four or five days, employing a tampon of carbolized cotton wet with a solution of alum. Concerning this latter measure, he has frequently applied the tampon, under these circumstances, and always with the best results. The bowels are also kept regular, and the functions of the skin and liver carefully attended to.

Where fungoid growths exist, due to engorgement

of the mucous membrane, the wire curette is resorted to.

Regarding absorption of the tumor by medicinal means, such as iodine, the iodide and bromide of potassium, etc., he thinks its accomplishment greatly the exception, rather than the rule. For this purpose, however, if employed, he advises that the administration of the drug must be kept up for several months. So far as the use of ergot is concerned, he finds that in certain cases it is quite serviceable; when resorted to, it should be given hypodermically, and the injection repeated from three to seven times a week.

Finally, surgical measures are adopted for the extirpation of the tumor. This may be done by excision, or enucleation, or by the écraseur.

In certain cases of uterine fibroids, where the tumor has been glued to the surrounding parts by the effusion of plastic lymph, induced by a past peritonitis, DR. THOMAS cautions that if the sound be introduced, it will probably light up an acute attack of peritonitis. He therefore advises that, locally, the patient be left entirely alone, treating on general principles. But if such a patient can go away, changing all her surroundings, have entire rest, perfect attendance, the best possible diet, together with iron, quinine, strychnia, malt and fatty

foods, he believes that she will be under the best possible conditions for restoration to health.

But of course these luxuries are not possible for all cases. Still he finds that much can be done even in those instances. It should be seen that the skin is performing its functions properly, and a hot salt sponge bath should be taken night and morning; a dipper of salt to an ordinary basin of water. This occupies but little time, possibly five minutes or more, and will prove of great benefit.

In addition to this, she should have fresh animal food three times daily, and vegetable food *ad libitum*. Also about noon, and again in the middle of the afternoon, she should drink a glass of milk or beef tea, together with ℥ ss. of the extract of malt, with the hypophosphites. Moreover, sometimes no medicine at all is required.

In many cases of *sub-serous fibroids*, he advises that local treatment be let alone. After examination, in some instances, this should not be repeated again for twelve months. Of course there are drugs affecting fibroids, and in some cases DR. THOMAS uses ergot hypodermically and internally, but in others he does not believe that any drugs are needed. Ergot, he finds, acts well when the tumor is in the structure of the uterus, is interstitial, and subject to compression by the muscular fibre. But

in other cases, he advises, by placing the patient upon general tonic treatment, when she reaches the menopause her fibroids will no longer trouble her.

With regard to the propriety of the operation for removal of the uterus for tumors, solid or fibro-cystic, DR. THOMAS advises that, in his experience, he should say that he was a dangerous gynæcologist who should go forth determined to extirpate the uterus. The reason why he considers it dangerous is because solid fibroid tumor of the uterus is so common. And yet, he advises, there are cases in which hysterectomy offers nearly the only hope of saving life. His idea is that hysterectomy should not be undertaken, unless the life of the patient seemed to be in jeopardy on account of the existence of the tumor. And if life is in danger, and the tumor can be removed by the vagina, that method should always be preferred.

With regard to the method of procedure, when hysterectomy is the operation to be performed, he has at last concluded upon the following: First, tie the vessels in the ligaments about the ovaries, and remove them, tying those next to the uterus first. Then lift the tumor, and if a stump can be obtained in that manner, secure it by a temporary ligature, and then cut the tumor down until two flaps are retained, which are to be united, the whole secured

with a carbolized ligature, and then return the pedicle to the abdominal cavity. If forced to do so, he use Kœberle's serre-nœud, closing the wound as thoroughly as possible around it, and sometimes introducing a drainage tube.

There is another point, which DR. THOMAS considers important, and it is that the operator should be careful with reference to performing oöphorectomy, when the case has been treated with ergot previously. For there may be sloughing at the very heart of the tumor, and an operation performed under those circumstances would greatly endanger the patient's life.

DR. T. A. EMMET believes that the tumor should be pulled out of the uterus, and traction made on it for some minutes (about twenty minutes) immediately before operating, to cause uterine contraction, in order to lessen the pedicle, and thus reduce the size of the denuded surface from which absorption of septic elements might take place.

When bleeding from the cervix occurs after removal of a fibroid he is always able to control the hæmorrhage in such cases, by injections of hot water, followed, if necessary, by the application of tincture of iodine. And he thinks that, as a rule, tamponing should not be done, in order that free drainage may take place after the operation. A tampon, however,

might be called for, and if so, one of alum-cotton is, in his estimation, certainly preferable to persulphate of iron cotton; for, he cautions, the latter, by destroying the natural characters of the blood, after which it is left in a position convenient for absorption, causes great danger of blood-poisoning.

In *fibro-myoma* of the uterus DR. EMMET has obtained very little advantage from the use of ergot in any form, in such cases. When given in large doses, where the tumor is not so situated as to enable the uterus to expel it, he finds that it produces congestion and inflammation. Sometimes absorption of the watery portions of the tumor takes place, but he has never seen the solid portion affected by the use of ergot.

DR. W. M. POST administers ergot steadily in cases of *intra-mural fibroid*, where the patient's condition does not call for immediate operation, as in catarrhal cases, in order to bring the tumor down. If she begins to develop symptoms of blood poisoning, and the tumor is found to have a livid appearance, with a sanious and foul-smelling discharge coming from the vagina, he usually operates at once. When the tumor is situated higher up, he generally begins by drawing it down and removing it piece-meal; after which he then endeavors to take away the stump with the fingers and the serrated spoon, thus gradu-

ally bringing it down and removing it until its final separation is accomplished.

DR. A. S. CLARKE highly recommends the following as an easy method of removing intra-uterine fibroids:

This consists simply in seizing the tumor and bringing it down as far as possible, then passing the écraseur over as large a portion of it as can be conveniently reached, and cutting this through. After which, the removal of the detached portion gives space for further manipulation, and the chain can then be made to take off, in detachments, nearly all of the growth down to the uterine wall. It is then, he finds, a comparatively easy matter, with the serrated scoop of Dr. Thomas, or the serrated scissors, to complete the operation with certainty. Moreover, he advises, this plan has the advantage of removing the capsule with the other parts, and so leaving nothing behind to slough and come away afterwards.

In general terms, the following plan may be given, which will embody, in substance, the methods adopted by the several authorities:

The indications to be met in the treatment of fibroid tumors are four in number: (*a*) to stop the bleeding; (*b*) to mitigate the pain; (*c*) to stop the further development of the tumor; and (*d*) to remove it if possible, entire, or, in case its size for

bids extirpation, to get as much of it away as possible.

The stoppage of hæmorrhage is often the most important item, at first. With this object in view the patient is put to bed, kept absolutely quiet, and ergot administered in large doses. It is a good habit to give at least a teaspoonful of the fluid extract every three or four hours during the continuance of the bleeding. The combination of the oil of erigeron with the ergot is also very desirable in some cases. If this treatment fails to do good, vaginal injections of hot water and hot applications to the spine may be used. Or, next to ergot, gallic acid is very serviceable, given in doses of twenty grains every second or third hour, until several doses have been taken. Opium, either by suppository or internally, is also given in a sufficient quantity to relieve the pains. Or, hypodermic injections of morphia are sometimes needed.

When the physician has once succeeded in stopping the hæmorrhage, he should take some precautions during the shortened inter-menstrual period to prevent its recurrence. This may be accomplished by giving medicines that reduce the congested state of the womb and allay its nervous excitement; such as bromide of potassium, tincture of nux vomica, and iron, are prescribed for this purpose. Iron, how-

ever, must be given cautiously, and only when the patient happens to be anæmic; for iron causes a tendency of blood to the womb, and so keeps up, in a measure, the bleeding. Also, in some instances quinia seems to have the same effect.

To stop profuse and exhausting hæmorrhage, many practitioners are accustomed to set to work as follows: A strip of lint is taken and one end wet with Monsel's solution. This is then carried up to the cervix through a speculum, and packed into the cervical canal by means of a uterine sound. The other end of the strip is allowed to remain free in the vagina, so that it can be removed easily. This packing of the cervical canal corks up the womb, and is sure to stop the drain of blood. Sometimes, instead of this lint, a clean sponge is introduced, or, what is better still, a sponge tent. The tent is preferable on account of its cleanliness. The blood oozes through it, and washes it sweet and free from fœtid discharges, and, moreover, it may be allowed to remain *in situ* much longer than the lint. Experience has proven, too, that a large sponge tent dilates the mouth of the womb, and, in some unexplained way, diminishes the bleeding. Various explanations of this fact have been proposed. Some hold that by pressure it diminishes the amount of blood in the cervical vessels, from which the bleeding may possibly come

The same result (*i. e.* stoppage of the bleeding) may often be accomplished by simple incision of the cervix. This incision should also be performed a few days before the expected appearance of the menstrual flow. Besides this, such dilatations and incisions are sometimes followed by permanently good results. Some months ago, a case, illustrating just such a condition as the one now under consideration, presented at one of the hospitals. The hæmorrhage was caused by an interstitial fibroid of moderate size. Merely for diagnostic purposes two sponge tents were introduced into the cervix. The unexpected result was the cessation of all serious hæmorrhage from that time on.

Furthermore, when dilatation fails, there is a resource still left in the division of the capsule, which will cut off a large source of blood, and will aid the efforts of the womb in extruding the tumor. For performing this operation Kuchenmeister's scissors are very serviceable, as the hook on the blade of this instrument prevents them from slipping or sliding backward while cutting. Also, while it is best to make as large an opening into the capsule as possible, a small one will often suffice, as a large tumor has been known to work its way out of an incision barely admitting the index finger. Then, as the tumor emerges from its capsule, its extrusion is aided

by traction and by severing its adhesions with the finger as they come within reach.

When the fibroid is of the *sub-mucous* variety, it is often the habit to remove it by avulsion. This plan, as laid down in the books, is to seize hold of the prominent part of the tumor with the vulsellum forceps, and, by both traction and twisting, to tear it off from its mucous capsule and out of its bed. A better way, however, is to seize the growth, as before, with the vulsellum, and pass up the wire-loop of an écraseur over the tumor, and cut through its mucous capsule flush with the uterine wall. Traction is then made by both vulsellum and écraseur, and the growth is enucleated, without any assistance, from its envelope. The large opening will be closed up by the subsequent contraction of the womb. In this way, out of quite a number of partly interstitial and partly submucous fibrous tumors which have been removed, but one death occurred, and that was from the occurrence of heartclot on the sixteenth day after the operation.

But whenever surgical procedures are out of the question, in these cases, no better can be done than to imitate the natural course of the tumors, and help it to become a polypus. This end may be accomplished by means of full doses of ergot, given hypodermically. The firm contraction of the uterine

muscles will also lessen the supply of blood, and the tumor may diminish in size, and sometimes disappear entirely. The best preparation is perhaps the aqueous infusion, each minim representing one grain of the drug. The proper place to make the injection is in front of the abdomen just below the navel.

In operating for extirpation of the tumor, in some cases this may be so large that it is impossible by any means to reach the cavity of the womb, and it may be necessary to incise the perineum in order to get the whole tumor away. The first thing to be done, however, is to clean out the vagina with carbolic acid. This syringing gives vent to a very offensive discharge which has been all the while imprisoned in the vagina, as the tumor acts just like the head of a child, preventing the escape of the waters. This putrid discharge is then deodorized, as well for the woman's sake as for the physician's; after which, it is first tried to pass a sound.

By means of the vulsellum forceps it is then endeavored to pull the tumor down, and cut it off near its base. If this is found to be impossible, then the obstetrical crotchet, provided with a hook, is employed. If this fails, then it may be necessary to cut through the perineum; this must be proceeded with cautiously, however, to avoid tearing into the rectum. In doing this, two lateral incisions, one on

the right and one on the left, may be made; or it may be necessary, also, to make a slight backward incision.

An assistant now pushes on the womb above, while it is tried to bring down the tumor with the guarded crotchet. It is necessary to support the perineum, meanwhile, by hooking the finger in the rectum. It may also be required, now, to take a second vulsellum, and make traction by catching the tumor below.

As the pedicle is reached, before proceeding to enucleate, it should be seen if the womb is inverted. And great care is needed here, as this is the dangerous part of the operation, for if the womb is at all inverted, it is very difficult often to decide which is the tumor and which is the womb. Also, for enucleation, it is best to employ the finger, to avoid getting into the cavity of the peritoneum; and while its base is being dug out of the walls of the uterus, it is well to have an assistant keep the organ inverted, as there is always less bleeding if one is able to do this.

If there is persistent bleeding, one part of Monsel's solution to three of water may be applied to the cavity of the womb by means of a sponge; but it is not always advisable to put foreign bodies in the womb, after such an operation, and gangrene and

necrosis may follow if the full strength of Monsel be used. Sutures should then be introduced, and care taken that the womb is entirely reinverted.

In certain cases where it becomes impossible to enucleate by means of the fingers, a serrated spoon may be used, or a groove cut round the base with a pair of scissors. Sometimes, also, there is great difficulty in delivering the tumor. In such instances, where the operator is unable to bring it down, he may cut off all he can with the hot wire at each visit, until he has finally brought it all away; but, as a general thing, if circumstances are favorable, it is best to do it all at one sitting, for a raw surface is constantly discharging, and there is constant danger of blood poisoning.

Again, if a tumor is found occupying the cavity of the womb, and it cannot be brought down, an attempt should be made to twist off the pedicle. The vulsellum forceps are of no use in this connection, because its hooks project; because it has to be opened so wide that it cannot be passed far up; and because it tears away after it has succeeded in catching the growth. On the other hand, the best instrument for this purpose is the fenestrated polypus forceps; this can be slipped into the womb and the tumor caught at hap-hazard.

Or, in such cases, if it is found to be impossible to

twist off the growth, then the following plan may be adopted, which rarely, if ever, fails: Catch hold of the anterior lip of the cervix with the vulsellum, handing the same to an assistant. The presenting end of the tumor is then *firmly* seized by the operator, with a second vulsellum, or polypus, forceps, and also given to the assistant to hold; after which the wire of an écraseur is slipped over this last forceps and up to the os. The tip of the écraseur is then pushed up *first*, and the wire coaxed *after* it, the assistant keeping up traction, until it has passed over the equator of the tumor, when it will then slip up to the root.

DISEASES OF THE VULVA.

In cases of *simple vulvitis*, DR. J. W. MCLANE directs that a brisk saline purge be given, and the patient kept quiet and at rest. The vulva should be bathed freely with warm water several times daily, and soothing poultices applied. Later on, when it passes into the subacute stage, he resorts to astringents, such as Monsel's solution, diluted. When *follicular* in character, his treatment is much the same as for the simple variety. The pruritus, which is often so annoying, he relieves by the use of a solution of carbolic acid, gr. xx–xxx. to the pint.

DR. T. GAILLARD THOMAS advises that, where the inflammatory process is severe, the patient be placed upon a low diet, together with rest in bed, and the bowels freely moved by cathartics. Cleanliness should receive careful attention, and warm water applications should be made to the parts three or four times daily. Poultices are also kept over the vulva, and to these may be added some lead and opium wash, with advantage. After a time, he directs that

the parts be painted over with a solution of persulphate of iron and glycerine, ℥ i–℥ viii., several times daily. If this plan of treatment fails to result in complete cure, he then resorts to the use of silver nitrate solution, gr. x–℥ i., once every forty-eight hours, and keeps the vulva constantly covered with a powder of bismuth or lycopodium.

His treatment is, in general, the same for both varieties; but in the *follicular* variety he recommends the following application:

℞. Acid. hydrocyanic. dil. . . ʒ ii.
Plumbi diacetat. . . . gr. xx.
Olei cacao . . . . ℥ ii.

M. Sig. Apply, after washing the parts with cold water.

In cases of *cyst of the labia*, Dr. T. A. Emmet believes that the only satisfactory method of treatment is by extirpation. If tapped, he finds that they are apt to refill; to suppurate, if injected; and, if packed, a slough is very apt to be produced. One great difficulty, he advises, in treating these cases, is that the tissue covering the cyst is so thin, that exciting inflammation within the sac is liable to be followed by sloughing; and, indeed, he has had that accident occur, where he had emptied the cyst and stuffed the cavity with lint. Regarding hæmorrhage, the only way of arresting it and securing union by

the first intention, he finds, is by introducing deep sutures.

DR. J. B. HUNTER'S method of treatment is, as a rule, to open the cyst and dissect it out. To check the bleeding, in some cases, all the usual means having failed, he has been obliged to pass a suture beneath the cavity made by excavating the cyst, and thus compress the bleeding surface.

DR. W. T. LUSK considers that the proper treatment is to incise and dissect out the cyst, after splitting open its external covering. This, he finds, is followed by immediate relief, and the trouble is removed at once with but little resulting soreness.

In *pudendal hæmatocele*, DR. J. W. MCLANE advises that when it occurs just at the close of the second stage of labor, cold should be applied to the vulva, together with a T bandage and compress. Tamponing should be avoided. Or, the sac may be opened on the mucous surface of the labium, and persulphate of iron solution injected, after turning out the clot. In some instances, he does not find it necessary to inject, a pledget of lint soaked in the iron solution being sufficient.

When the hæmatocele is seen coming on, he directs that delivery be accomplished at once, but slowly, with the forceps compressing the head as much as is deemed safe; or, if the child is dead, he resorts to

perforation. After this, pressure and cooling lotions are applied.

Where it does not occur until after labor, and the patient shows signs of hæmorrhagè, he opens the sac at once, tampons the vagina, and packs the sac with lint saturated with the persulphate, or, if necessary, applies the actual cautery.

If it is evident that the tumor is going to rupture, as it is apt to do on about the fourth day, he applies poultices of linseed meal, incises the sac and injects it with persulphate of iron, or perhaps uses the actual cautery.

In the treatment of *pruritus vulvæ*, DR. T. GAILLARD THOMAS directs that the primary efforts should be to ascertain the cause of the trouble, and, if possible, remove it. Besides this, however, palliative measures must be resorted to for immediate relief. Where the symptom is found to depend upon contact of an irritating discharge with the nerves of the vulva, he advises that absolute cleanliness should be observed, to secure which, several sitz baths should be taken daily, and at the same time syringing out the vagina with either medicated or pure water. The parts should also be protected by powders, such as bismuth or starch; and if the irritating fluid is discovered to come from the uterus, either a pledget of cotton should be placed against the cervix daily,

or, what he considers better, the vaginal douche should be thoroughly used, and the vagina then tamponed daily, with cotton soaked in a solution of borax and glycerine, ʒ ii–℥ i.

By this means of treatment, he has obtained the most satisfactory results; moreover, the patient need not be confined to bed. In these cases, also, he recommends the following very highly, both as a vaginal injection and as a wash for the vulva:

℞.	Plumbi acetat.	ʒ ii.
	Acid. carbolici . . .	gr. xl.
	Tinct. opii	℥ i.
	Aquæ	O. iv.

M.

Where the pruritus is the result of some local inflammation, an eruptive disorder, etc., this should receive treatment by appropriate means.

Dr. J. W. McLane first directs his treatment to the condition which gives rise to the pruritus. If diabetes is present, he directs that the urine be drawn off for a few days, until the sugar disappears; or, the parts may be syringed with a solution of borax, after micturating. If leucorrhœa exists, this receives attention. If pediculi are found, the hairs covering the parts should be cut off, and a solution of corrosive sublimate and Cologne water, gr.ii–℥ i., applied; or the ointment of mercury may be used. For the

acarus scabiei, sulphur ointment will be found serviceable. If dependent upon the presence of thread-worms in the rectum, he advises that the infusion of quassia, of twice the officinal strength, be injected into the rectum and vagina, two or three times daily, and general tonic treatment resorted to. When masturbation is practiced at night, the patient should be hand-cuffed.

In all cases, however, he advises that perfect cleanliness should be secured, and sitz baths taken every day. For local use he does not consider powders so good as lotions or ointments, as the powder absorbs the discharges and keeps in contact with the parts. An ointment containing opium, tannic acid, and cacao butter, or a solution of morphia and borax in rose-water, are highly recommended by him, to be used at night in the form of a suppository or loose tampon. In many cases, especially those due to cancer, he finds a firm tampon of much efficacy.

VAGINITIS.

Dr. J. B. Hunter believes that one of the best injections, employed by him, in simple vaginitis, is the infusion of tobacco, a pint of it being used after hot water injections have been practiced. But, he advises, the shortest way of curing any vaginitis is to tampon lightly with carbolized cotton, once or twice daily, moistening the cotton balls with equal parts of glycerine and water. For local applications, when these are required, although there is a large number from which to select, the following are, in his estimation superior to all others: silver nitrate, gr. xxx to ℥ i., the fluid extract of eucalyptus, and the tincture of iodine. If, however, the tamponing is done faithfully, that alone, kept up for a week or ten days, he often finds to be sufficient.

Concerning a gonorrhœal discharge, he finds that it is more likely to affect the urethra and bladder early, than an ordinary vaginitis; but, he advises, it is difficult to distinguish between the two.

Dr. T. A. Emmet has made use of Fuller's earth for many years in the treatment of vaginitis, mixing

it with glycerine, and finds it an excellent remedy, if not retained too long, but after becoming dry it is exceedingly irritating and difficult to remove. He recommends, however, that flaxseed poultice may be a far better material than clay, as it will not become hardened like the latter.

DR. J. W. MCLANE directs that perfect rest and absolute cleanliness be secured, and warm baths be taken two or three times daily. If a burning pain is present when passing water, he renders the urine alkaline by the administration of liquor potassæ, to which is added a little hyoscyamus. The walls of the vagina are also separated with a glass dilator, and injections of lead water practiced, together with the use of opium suppositories. In cases which have a tendency to become chronic, he paints the vagina with a solution of silver nitrate.

In cases of acute granular vaginitis, DR. P. F. MUNDE directs that the treatment must be conducted on the general principles of catarrh of the mucous membrane. Unless a very large surface is present which he desires to contract, he does not use the stick of nitrate of silver, as it produces a slough and the cicatrix is more tense than from any other caustic. A solution of silver nitrate is, however, very often employed by him, in varying strength of from gr. v. to gr. lx. to the ounce; and where he

wishes to apply fluid to the vagina, he uses a cylindrical speculum. In very acute cases he uses a solution of ʒ i. to ℥ i.

After the application is made, he then introduces a tampon covered with vaseline, passing it up so as to keep the vaginal walls apart, and then withdraws the speculum. In such instances, he advises that the tampon serves two purposes: first, it acts as an emollient to the vaginal walls, and secondly, it separates them. A little pledget of cotton, covered with vaseline, is then placed over the labia, to prevent them from rubbing. He then orders the following as an injection, to be used three times daily:

℞.	Zinci sulphat.	
	Sodii borat.	āā ʒ i.
	Acid. carbolic. pur. . .	ʒ ss.
	Aquæ	O. i.

M.

After three days the silver nitrate solution is reapplied, perhaps of a somewhat weaker strength; and in a few days another, and still weaker, solution is employed.

After a time, that is to say, as soon as the mucous membrane has become pale, and the discharge is no longer yellow, but only white, he then stops the silver nitrate and applies, instead, as an astringent, a solution of tannin. The whole vaginal wall is

painted through the speculum with the glycerole of tannin, 1 to 4; by pouring it into the speculum, and with a stick of hard rubber, with cotton wrapped around the end, painting over the entire vaginal wall. The speculum is then withdrawn, and again introduced and the tampon, soaked in the same solution and squeezed dry, applied; this (tampon) is renewed every other day.

By this plan of treatment he usually finds that by the end of three or four weeks, the case will be cured.

In milder cases, the treatment adopted by him is much the same as in severer instances, but more mild in character.

For a speculum, he uses either a Ferguson's (glass covered with tin-foil and varnish), or, for both a good view and for durability, DR. MUNDE recommends a celluloid speculum; only, it is cautioned, do not pour alcohol or camphor into it, or bring it near the fire, as these instruments are made of gun-cotton, and they *might* explode in the vagina.

VAGINISMUS.

In the treatment of vaginismus, DR. M. A. PALLEN advises that two methods of procedure are at the disposal of the practitioner, namely: the radical, and the palliative.

In employing the first, which consists in the division of the vaginal muscles, he prefers to use in the operation, a small tenotomy knife, introduced under the mucous membrane, and thus divide the muscles. But he cautions that care must be taken to avoid cutting the mucous membrane and the glands of Bartholinus, and to leave no cicatricial tissue behind. This operation, he finds, will afford effectual relief.

He also directs, however, that the palliative method should be tried first. This consists in the gradual dilatation of the vagina by Barnes' dilators, or rubber bags filled with water.

DR. J. W. MCLANE directs that the pubo-cocygeus muscle (the seat of the spasm) must be tired out. To accomplish this, he inserts a dilator, after first giving a warm sitz bath, and a warm, soothing injection. Then when it is well softened and quieted, he

smears a dilator with vaseline containing a little atropine in it, and passes it in slowly, fastening it in with a T bandage and leaving it there for two or three hours.

This is the plan of treatment he considers best in newly married girls, and it should also be tried in old cases.

In other instances, he resorts to snipping off the carunculæ myrtiformes with scissors, and using warm injections and suppositories of belladonna. Forcible separation of the vulvar ring is also practiced, and a dilator inserted.

When operative procedure is called for, he enlarges the opening, separates the edges of the vulva, and incises the posterior vaginal wall, making a straight cut in the median line, down into the perineum, but being careful not to cut the skin.

The treatment of vaginismus by the gradual dilatation of the vagina with tents of progressively increasing size, is recommended by many and with excellent results. According to the circumstances of the case, these tents are impregnated with different applications; and these topical remedies, it is also found, aid materially in curing this condition. For this purpose, the use of iodoform is recommended, made up into an ointment, as follows: iodoform, gm. ii., cocoa butter, gm. ii., and fresh lard, gm. ii.

This preparation may be employed when there is redness or excoriation of the mucous membrane.

In other cases, however, when there is only pain without any visible change in the mucous membrane, an ointment composed of extract of belladonna, gm. ii., and fresh lard, gm. xv., may be prescribed, and is frequently found very efficient. In this, as in the previous instance, the tents may be as small as possible.

After the employment of the iodoform ointment, it is well to replace it, after a few days, when the redness and excoriations have disappeared, by the belladonna preparation.

In both cases, however, care should be taken to increase daily, by an imperceptible but still advancing gradation, the size of the tent. By this means, at no very distant period, a tent is habitually employed which is of such a size as to allow the introduction of the male organ. And in effecting this result, the action of the narcotic substance and the progressive dilatation both materially assist each other.

DISEASES OF THE URETHRA.

In cases of *urethral caruncle*, DR. P. F. MUNDE'S treatment consists in removing the growth. The patient is put under the influence of ether, the labia separated, and the growth exposed by means of either an ordinary dressing forceps, or one of the various forms of urethral specula. A double tenaculum is then hooked in the growth, lifting it up so as to get at its base, and a small looped wire applied. Then, by twisting this tightly, the excrescence may be removed; or it may be burned off by the Paquelin cautery at a dull heat. He prefers, however, to first snip off the growth with scissors, and then cauterize the base with the cautery, or fuming nitric acid, to prevent hæmorrhage and its recurrence.

The after-treatment, he advises, consists simply in moderate irrigation. If there is much pain present, he applies ice-water compresses over the vulva.

He also cautions that it is well to perform dilatation of the urethra, before cauterizing, as vesical tenesmus is liable to ensue. Be careful, however, not to over-dilate the female urethra; he considers

the little finger always sufficient, and permanent incontinence, he advises, will not then follow this moderate distention.

DR. J. W. MCLANE directs that the tumor ought to be removed with the scissors. Many patients, however, will not allow this to be done, when he then employs the stick of silver nitrate. In operating, he deeply etherizes the patient, and places the limbs in a flexed position. He cautions against pulling it out with the forceps, but advises that a ligature be passed around the growth, drawing it outside the urethra, and then cuts it off with the scissors. For arresting the hæmorrhage, he uses a red-hot knitting needle. After operating, a cold water dressing is applied, and, as a rule, he also finds it necessary to employ the catheter for a time.

In the treatment of *urethritis* in women, DR. T. A. EMMET keeps the patient in the recumbent position, moving the bowels freely by the administration of saline cathartics, and seeing that the urine is in a bland condition. Hot water vaginal injections are also given, together with warm sitz baths. He also directs that the urethral tract be washed out several times daily with warm water, after which the extract of pinus canadensis, to which a little impure carbolic acid has been added, is thoroughly applied to the part.

Sometimes he finds that the application of a weak solution of nitrate of silver, or of impure carbolic acid, will render valuable service. Then, as the case improves, vaseline, or a little tannin and glycerine, is employed by him to protect the parts sufficiently.

For the cure of *urethrocele*, DR. T. GAILLARD THOMAS, in some cases, removes the entire portion of the urethral wall composing the tumor, and approximates the lips of the wound with sutures. In other instances, he considers it a better plan to encircle the mass with the galvano-caustic wire, remove it, and keep a catheter in the bladder for several days, if necessary. Should severe hæmorrhage follow, a firm vaginal tampon with a T bandage is applied, which usually controls it.

DR. T. A. EMMET has also employed the above method of operating in these cases, and with perfect success.

Finally, it may be stated that, as a rule, the plastic operation for the cure of urethrocele, as done by Emmet, Sims, Bozeman, and others, is generally advocated by gynæcologists at the present time, no matter if the disease is simple or complicated. That such an operation is indicated in some cases, and *sometimes*, even, is the best and shortest method, is undoubted: but there are other means which in

many, if not in most, cases, may be preferable, and effect a cure.

The object is to restore the dilated part of the urethra to its normal calibre, and subdue all irritating causes and inflammations. Internal remedies must be given according to the symptoms; as anti-phlogistics to counteract inflammations; narcotics to allay pain and tenesmus, also to procure rest and sleep; and to these may be added emollients and anti-spasmodics.

But the principal reliance consists in local treatment, and some of these measures may even replace the internal remedies. Thus, narcotics and others may be given in suppositories, subcutaneous and other injections. Hot applications may be applied externally. Furthermore, the bladder and urethra must be washed out, as often as necessary, with hot water, sometimes medicated, as required by the symptoms. This cleaning and freeing the parts from all foreign bodies, does a great deal of good.

The urethrocele proper must also be examined by ocular inspection with a short endoscopic tube. Through this tube local applications are made to erosions, ulcerations, and granulations only; this being done by a small brush, with stimulating or astringent remedies, as indicated.

Strong solutions must be handled carefully, so that

no healthy portion of the mucous lining is touched. If a larger surface of mucous membrane is reddened or hypertrophied, applications may be made with the atomizer through the same short endoscopic tubes, or sometimes even with the atomizer direct.

It is believed that most cases will get well under this treatment, if the patient is kept at rest, with proper diet, careful attention, and skilful manipulations with trained assistants. Moreover, some cases have recovered under such treatment after plastic operations had utterly failed.

Furthermore, it is believed that *operations are not always necessary to cure a urethrocele;* other means may do it, particularly in simple urethrocele, without ruptured perineum.

DR. T. A. EMMET highly recommends *a new method of exploration of the female urethra,* with reference to the treatment of its diseases.

Some six or eight years since he first devised a plan of making a buttonhole opening into the female urethra, for the purpose of making a diagnosis, or to facilitate any operative procedure. But, during the last two or three years, he has gone over the subject very carefully, and the method which he now describes is the only one, he believes, within the knowledge of the profession, which fulfils every indication, is safe, simple, and within the scope of any

one possessing the least degree of surgical dexterity.

For its application, he advises that it is necessary to anæsthetize the patient, and place her upon the left side, using a moderate sized Sims' speculum to bring into view the vaginal surface covering the urethral tract.

In this operation, he has devised an instrument for making an opening into the urethra. This is formed somewhat upon the principle of the scissors used for cutting button-holes, with the exception that the portion entering the urethra is made rounded, and like the extremity of a large uterine sound. The vaginal blade has a portion removed, as in the button-hole scissors, so as to begin the incision about one-fourth of an inch from the urethral orifice, and from which point the opening is to be extended, in the median line, nearly to the neck of the bladder.

When the incision is made by means of the knife or scissors, the operation can be greatly facilitated by first introducing into the urethra a block-tin sound, of sufficient size to put the tissues within the canal somewhat on the stretch.

The operation is begun, DR. EMMET advises, by catching up with the tenaculum, all the tissues on the vaginal surface, about midway between the mouth of the urethra and the neck of the bladder,

and dividing them through to the sound. After this, the canal is entered, and the incision is extended with a pair of straight pointed scissors, in the median line backward toward the neck of the bladder, and forward to within one-third of an inch of the mouth of the urethra.

He cautions that it is necessary in this operation, to avoid dividing the urethral outlet; and it is considered still more important that the incision should not involve the neck of the bladder, as the patient will then continue to have control over the urine. He wishes particularly to impress the importance of this precaution, not to extend the incision through the urethral surface too far backward.

The line along the vaginal surface should, he directs, be made nearly one-third longer than the one through the urethral mucous membrane, and it is important that the chief difference should be at the end of the line from the neck of the bladder. By this means he thus gains, with beveled edges, a great advantage for the examination of the urethral tract. Moreover, from the greater length of the line being on the vaginal surface, the lower angle of the incision is seen at the neck of the bladder, so that, if necessary, the finger, or a small speculum can be passed into the vesical cavity with little fear of laceration or loss of control.

Should he wish, by operation, to make a simple exploration of the canal, he can, after doing so, unite the line of incision without delay, but to unite them properly the urethral edges must be turned, by means of the tenaculum, so that the suture may be passed in a way to include the mucous membrane, and bring its divided edges into close lines of contact.

The after-treatment resorted to by DR. EMMET is simple, and consists in keeping the patient in bed for a week, until the sutures have been removed, and in being careful for a few days longer. While in bed, he directs that she be allowed to empty the bladder at will, using the bed-pan when possible and avoiding the passage of the catheter, except under the most urgent circumstances. Also, when it is desirable to keep the opening patulous, the edges of the divided urethral mucous membrane may be united to the vaginal surface, by means of interrupted sutures of properly prepared catgut, or by simple silk thoroughly carbolized.

He claims that the advantages from this operation are greater than can be given by any other method known to the profession, inasmuch as the whole of the canal can be fully exposed, and any mode of treatment suggested by the condition of the parts can be easily applied ; further, that the operation is perfectly safe, and can be executed without diffi-

culty; that, if properly performed, control of the urine will not be in the slightest degree impaired; that the bladder can be emptied afterward at will, and without difficulty; that no difficulty has been experienced in closing the urethral opening afterward; that, on inquiry, those who have been operated upon have said that after the edges had healed, they were unable to appreciate any difference in the passage of the urine; and, finally, DR. EMMET advises, that it is not intended to supersede vesico-vaginal fistula for cystitis, or for removal of stone in the bladder. (This opening in the urethra, he cautions, cannot be of the slightest advantage for drainage of the bladder, unless the urethral canal be also involved.)

DR. WM. T. LUSK has also performed this operation and is much pleased with it.

DR. A. J. C. SKENE does not think that Emmet's operation for exploration of the female urethra, is one always easy of performance. Moreover, when the opening has been made, in his experience it does not by any means afford the most perfect method for diagnosis, when compared with others, except in cases of polypus.

OVARITIS.

In *chronic ovaritis*, DR. P. F. MUNDE advises that the treatment is almost entirely local. A blister should be applied once or twice a month over the ovarian region, to be alternated in the intervals with tincture of iodine. He then packs the vagina full of cotton soaked in glycerine, and uses injections of hot water, with the addition of a little glycerine, twice a day, a gallon each time, the patient being in the recumbent position, with the hips elevated, in order that the water may stay in as long as possible. This treatment he then continues for weeks and months.

For internal medication, this, he advises, consists chiefly in the administration of tonics. There are two or three ovarian sedatives, which he considers of some efficacy. The bromides may be given, either in combination with sodium or potassium. Or, he is sometimes able to reduce the size of the ovary by giving morphine, or the bichloride of mercury, gr. $^1/_{24}$, two or three times a day, combined with the muriate of ammonia in doses of gr. v.

Or, the chloride of gold and sodium, in doses of gr. $^1/_{30}$ to $^1/_4$, thrice daily, in pill form, may also be given with advantage.

DR. T. GAILLARD THOMAS believes that there is no medicinal treatment that will cure; by this means it can only be expected to palliate the sufferings of the patient. The pain may be diminished and neuralgic conditions relieved by hot vaginal injections, which, he directs, should be used copiously, every night and morning. The bromide of potassium, in doses of gr. x–xv., will also afford relief to the accompanying nervous symptoms. In addition to this, the application of the electric current may also be employed with benefit. If prolapse exists, a light, elastic ring pessary should be applied for support, and sexual intercourse limited. Where the menstrual flow is scanty, one or two leeches may be applied to the cervix every month. During the menstrual period, also, he advises that rest be secured, and that at all times undue exercise or fatigue should be carefully avoided.

Counter-irritation, by means of blisters, etc., applied over the ovaries, is kept up by him for several months, and the cervix, as well as the entire upper portion of the vagina, is painted with tincture of iodine once or twice a week.

Sometimes, he finds, the cases go on to ovarian

epilepsy, and for their relief some gynæcologists perform Battey's operation, but this procedure he looks upon as a final resort, where life is intolerable Tait's operation, he also considers a very hazardous one, and only justifiable after the suffering of the patient has become so constant and unbearable that death is preferable to such a life.

In the treatment of ovaritis, says a prominent gynæcologist, he is a wise man who, recognizing an oöphoritis, will allow the uterus, no matter how greatly misplaced it may be, to remain just as he happens to find it, and will address himself to the ovary alone; who will assure his patient by a cheerful manner, and will explain to her what he hopes to achieve in the administration of certain remedies. He will much more surely attain his end and the confidence of the woman, by declining to interfere needlessly, by vaginal examination, or by constant attempts to replace the uterus, which only shock her nervous system, and exaggerate the mental disturbance always present. Relieve the patient first, he advises, of her intolerable suffering and despondency, thus winning her sincere regard, and there will be time enough left to rectify the other matters.

Moreover, he does not believe that the cause of the long and varying train of symptoms is ever to be found within the uterus, however misplaced it

may be, or in however great a degree its mucous membrane has degenerated. Displaced uteri, lacerations of the cervix, endometritis, endo-cervicitis, and metritis, he advises, have a symptomatology in which, while many symptoms are common to each, other and characteristic ones are sure guides in the location of the difficulty. Neither does he believe that any good results can possibly obtain, if the secondary conditions are allowed to obscure the primary. The intercurrent dysmenorrhœa accompanying an oöphoritis, being a mere expression of deranged ovarian function, will not yield to uterine medication, neither will the dysmenorrhœa, associated with a dislocated uterus, yield to the replacement of that organ, provided there be inflammation or degeneration of the ovary. Misplaced uteri, he finds, are never accompanied by the same alarming series of symptoms. The inconveniences thus occasioned, in uncomplicated cases, yield readily to pessaries, or to medicated tampons. But it so happens, that oöphoritis is most frequently found in connection with some derangement of the uterus, sufficiently well marked to lead up to the belief that this, of itself, is the *fons et origo* of the patient's illness.

Also, the groin pain, the melancholia, and dyspepsia are attributable to the retroverted uterus, and will yield, so it is hoped, to the properly adjusted

pessary. But the great mischief of the pessary, he considers, is found in the ease with which it is applied, and in the marvellous and oftentimes imaginative good which it is alleged will follow upon its introduction. Pessaries are only *exceptionally* beneficial. The majority of cases do better without them, and get well faster and with a greater assurance of permanency with medicated tampons. The indiscriminate use of the pessary, and its not infrequent mal-adjustment, are the exciting causes of serious disease.

Furthermore, the recurrent peritonitis, or the pains simulating a peritonitis, due to a salpingitis with pus formation in the tube, or to an inflammation or degeneration of the ovary, come around with discouraging regularity and persistency. With as constantly recurring a disregard of the ovary, the seat of the disorder is again relegated to the uterus, the endometrium is again and again medicated, another pessary is applied, the recurrent abdominal inflammation is variously attributed to an old pelvic inflammation, to sympathy, or to a pathological condition within the uterus, and thus and so the woman fades away, carrying along with her the reputation of the physician and the silent evidences of his lack of discrimination.

Again, in certain cases associated with a retro-

verted uterus, with a subacute pelvic inflammation, and with the recurring abdominal pain and nausea, it is found that no local treatment of the uterus, whether of replacement or of internal medication, has given the slightest relief. Absolute rest, electricity, massage, and full feeding, have accomplished something, but the least departure from so strict a regimen sets up the old train of symptoms. Ergot with bromide of potassium, chloride of gold and sodium, the alterative treatment with mercury, and counter-irritation have all been equally unavailing, though a fair and honest trial has been given to each. Therefore, in his opinion, the fact seems to him to be clearly demonstrated that the uterine displacement has nothing to do with the distressing symptoms; that the retroversion and oöphoritis are entirely distinct maladies, each characterized by peculiar phenomena and each calling for separate treatment.

He has also made a trial of rectal suppositories of one-quarter of a grain of *iodoform*, combined with a small quantity of the alcoholic extract of *belladonna*, one of these to be used three times a day. In three instances under his own observation, these suppositories have given more satisfying results, and better grounded hopes of future alleviation, than anything else that he knows of. Absence from the marital

embrace, with proper hygienic and dietetic rules. must also be enforced rigidly. The alleviative and sedative properties of iodoform are well known, and in no other disease, he believes, are its properties brought out so clearly.

Finally, he advises, while it may be an error to postpone an operation for the removal of the uterine appendages until the patient is worn out with her sufferings, it is a very natural timidity to shrink from assuming so grave a responsibility, especially in the case of those within the home circle.

OVARIAN NEUROSES.

In regard to the treatment of nervous affections of the ovaries, DR. A. J. C. SKENE finds that, although in some cases these neuroses will disappear as soon as the ovarian disease is cured, yet the great majority of them require both local and general treatment.

In amenorrhœa, irregular and scanty menstruation, due to defective development or functional inactivity of the ovaries, he directs that local stimulants should be employed. The most valuable of these, in his experience, is electricity. Indeed, the chief or only benefit that he has derived from the use of this therapeutic agent in the treatment of menstrual disorders, has been in amenorrhœa due to defective ovarian influence. Here the establishment of a normal menstruation is almost sure to be followed by an improvement in the condition of the nutritive and nervous systems.

The same effect is observed by him in congested, irritable states of the ovaries, after normal co-habitation. The sedation which follows functional action

is, he finds, as marked in its restorative power upon the nervous system, as inaction is detrimental.

The question of advising or sanctioning marriage, in cases of ovarian-neuroses, he considers of very great importance. It is generally beneficial in irritable and congested conditions of the ovaries, and is therefore admissible; but it is almost always disastrous in inflammatory affections and prolapsus.

But when there is some definite pathological lesion present, he directs that the best recognized means can be employed for its relief. For example, in prolapsus of the ovaries, mechanical means can be used to support them. A pessary may be made to hold them up, or the tampon may answer that purpose better. Postural treatment, that is to say, the knee-chest position, should be assumed several times a day, and maintained as long as the patient can tolerate it.

Pain and tenderness due to congestion or inflammation, may, DR. SKENE finds, be relieved by iodine used per vaginam. Or, iodoform used in the same way, is occasionally a valuable sedative. Suppositories of belladonna also give relief in some cases. Again, counter-irritation, applied in the iliac regions, is often very valuable. For this purpose, he uses the tincture of iodine, blisters, croton oil dissolved in ether, or the

actual cautery, and these have all been employed with benefit.

Concerning internal medication, the bromides are of great value, in his opinion, in some of the obscure forms of ovarian disease. In administering them, he prefers to put the patient fully under the effects of the drug. And this he can best accomplish by giving large and often repeated doses, until its characteristic effect is produced. Conium may also be used in the same way. He does not think, however, that the prolonged administration of either of these medicines is useful, at least in large doses. Moreover, if benefit is observed after the free use of a remedy, smaller doses may be continued, care being taken not to reduce the strength of the patient, or derange the digestive organs.

Also, at all times, he considers it necessary to employ every means to improve the strength of the patient, and hence the bromides should be combined with tonics. It is very important to keep the bowels free, as constipation greatly aggravates the suffering, especially if the left ovary is involved. In one patient, who came under his care, the suffering caused by the action of the bowels produced a nervous agitation amounting almost to mania.

Regarding the use of opium, chloral, and alcohol, while they often give great relief, yet, DR. SKENE

cautions, they are dangerous; opium especially should be avoided, because patients who have ovario-neuroses very easily acquire the opium habit.

OVARIAN TUMORS.

In the treatment of ovarian tumors DR. WM. T. LUSK advises that there are two measures worthy of consideration—one palliative, the other curative.

The *palliative* means of treatment consists in aspirating the tumor; but he also sometimes aspirates the tumor for the purpose of diagnosis, and to give temporary relief. In performing this operation, he does not consider it advisable to use a large-sized trocar, for the dangers of tapping with a large trocar are almost as great as ovariotomy itself. The reasons why it is dangerous are that, in the first place, a large vein may be perforated, which would be foled by profuse hæmorrhage; and, in the second place, air entering the sac through the large opening, decomposition of the cyst contents may be set up, and the patient may die from septicæmia.

He frequently resorts to aspiration, however, because patients are often very much reduced from inability to retain nourishment; and it becomes necessary to remove the pressure from the stomach, exerted by the cyst, in order that she may have, pre-

liminary to operation, the benefit derived from taking a sufficient amount of food. In tapping one of these tumors, moreover, he is always careful to use a needle which has never been employed for any other purpose, owing to the danger of infecting the tumor.

The objections to frequent tapping are, he advises, that a slight amount of peritonitis and adhesions of the cyst to the abdominal walls is likely to follow, and that after the cyst has once been emptied, it usually fills again very rapidly. This rapid filling of the cyst, within two or three weeks from the tapping, is, he finds, a source of exhaustion to the patient, because the refilling of the sac can only take place from materials derived from the circulation, so that repeated tappings are inexpedient.

The *radical treatment* of ovarian tumors consists in the removal of the entire cyst. In resorting to this procedure—*ovariotomy*—preparatory to the operation, DR. LUSK endeavors to see that the patient is put in the best possible condition, by taking daily baths, and by having mild laxatives administered every morning for a week in advance. The day before the operation, the food should consist of milk only, or of fluids, because at the time of the operation the intestines must be empty and void of solid fæces. The day before he proposes to

operate, he prepares himself by taking a Turkish bath, and having his hair shampooed by a barber, to make sure that he carries no poison about him that can cause contagion. If he should find that he had a cold at the time appointed, he puts off the operation, because, in catarrhal affections, bacteria swarm upon the mucous membrane of the mouth, the fauces and tongue, some of which might, in coughing, gain access to the abdominal wound; and for the same reason he objects to assistants or near spectators suffering from colds.

If he is to operate in the hospital, the day before he has the room thoroughly fumigated, and, in the morning of the same day, he has the carbolic spray started and kept working till the operation is completed. The room should also not be kept too hot; he prefers that the temperature should not be above 75° to 80°.

If the patient seems very much excited, he considers it a good plan to give her an opiate the night before, to induce sleep.

On the morning of the operation, he takes a list of all the instruments which he may need, and sees that they are ready at hand. Instruments with keen edges, he advises, should not be left over night in a solution of carbolic acid; one or two hours before you are ready to use them, will suffice for their dis-

infection. If they are not perfectly bright, or contain any rust upon them, they should be sent to the instrument maker to be polished. On the other hand, instruments which do not have sharp edges should be left in a 2 per cent. solution of carbolic acid, for at least five or six hours before the operation.

Three assistants will also be needed; one to administer ether, a second to attend to sponging the parts and keeping them clean, and a third to hand him the instruments as they are needed, and to look after the ligatures. Also, if an abundance of assistance is at hand, he advises that it will be well to have one to attend to the spray, another to handle the thermo-cautery, and it is also very convenient to have one who does nothing but look after the ligatures. But he considers the man who gives the ether next in importance to the operator. He should be experienced, and one who can be relied on to attend strictly to his business.

The ligatures should be soaked for two or three hours beforehand, he directs, in a 5 per cent. solution of carbolic acid, and they should be made of strong twisted silk. It has been proposed by some to soak them in boiling carbolized oil, but he finds that boiled silk becomes brittle, and the breaking of a ligature is very annoying.

The proper way of administering the anæsthetic,

DR. LUSK advises, is to give only just enough to keep the patient under its influence, so that she will recover from its effects within a few minutes after it is withdrawn. The usual manner of giving it in enormous quantities, so as to completely overwhelm the patient, is condemned by him, as it does much to keep up and intensify the nausea which follows the operation; and prolonged nausea and vomiting is, in itself, very devitalizing under any circumstances. Hence it is best to give the smallest amount of ether that is possible to keep the patient unconscious.

He still makes use of the spray throughout the operation, and, in employing it, he directs the current so that the spray will not pass into the abdominal cavity, but across the abdomen of the patient, and *in the direction* of the bystanders, so as to produce a current to waft *from* the patient any germs they may carry with them in their clothing.

Also, the sponges should be carefully cleansed. These should be purchased new three days, at least, before the operation, and put in a 5 % solution of carbolic acid and left to soak for two days. Then, on the morning of the day of the operation, they should be squeezed out and placed in a 2 % solution, where they are to stay until used. He also selects a number of small soft sponges, thus prepared, to

clean the parts during the operation, together with a large, flat one (the use of which will be explained further on).

When every thing is ready for the operation, before this procedure is begun, and during etherization, he advises that a last, careful examination of the tumor be made, and it is best at this time, also, to draw off the urine, if it has not already been passed, for the bladder should be empty in order that it may not be in the way of the incision. Also, after sponging the abdomen with a solution of carbolic acid, he finds it convenient to have a sheet of thin rubber to cover the whole abdomen, prepared for use by cutting in the centre an oval opening, six or seven inches in length, and applying to this a square piece of adhesive plaster, with a smaller opening of the same shape, but leaving the adhesive plaster to overlap the opening in the rubber by a margin of nearly an inch. When applied to the abdomen, the opening should come just over the part in which the incision is to be made, the adhesive plaster fixing the rubber cloth firmly in place. This prevents the patient from getting wet with the fluids that escape during the operation, which he considers an important precaution, because any evaporation from the peritoneal and abdominal surface abstracts heat from the body, and tends to add to the shock

of the operation, aiding in depressing the vital powers of the patient.

After again sponging the skin, through the opening in the rubber sheet, DR. LUSK makes, with a sharp scalpel, an incision extending from two inches below the navel, to two inches above the symphysis pubis. In most cases, he finds, that an incision five inches in length will be sufficient; though, at times, it may be necessary to begin above the navel and carry the incision to the symphysis. But the short incision, where practicable, he considers better than the long one. Also, it is best not to make the opening too high, for it is necessary to get as near as possible to the pedicle, which is situated in the pelvis. He further cautions against trying to work through too small an incision. Some operators are satisfied with one only two inches long, but he generally finds four or five inches preferable, and less dangerous.

He first cuts through the skin and subcutaneous areolar tissue, then through the deep fascia to the the muscles, closing all bleeding points with pressure forceps as he proceeds. When one of the recti muscles is met with, he cuts directly through it, no matter whether he is exactly in the linea alba or not, and directly down, in a straight line, to the subperitoneal tissue. Then, as this layer resembles the

mesentery somewhat in appearance, and as he wishes to feel sure of what he has to deal with, before proceeding further, a portion of it is raised with a tenaculum, or a pair of tissue forceps, and snipped with scissors.

The tumor, lying beneath the peritoneum, can be recognized by its glistening appearance and bluish color. He next introduces a grooved director, to guide the knife and protect the tumor while incising the peritoneum. Then, before proceeding further, he endeavors to find out the condition of the tumor, and its relations to the abdominal viscera. A large, heavy sound may be used to pass around the sac, to ascertain if there are any adhesions. He cautions, however, against trying to break such adhesions, if present, with the sound, on account of the danger of tearing the intestines; but this should be done under the guidance of the eye. As a rule, the opening in the peritoneum should be large enough to allow the hand to be introduced, if necessary, by which means the adhesions between the sac and the abdominal wall should be stripped off slowly and carefully, care being taken not to break into the sac, which would thus allow the fluid to escape into the peritoneal cavity. Such cases, he advises, where there are no adhesions other than can be easily reached and torn away with the fingers, may be re-

garded as simple ones. But, if he finds that there are adhesions connecting the sac with the intestines, or any of the abdominal viscera, he considers it well to wait, before separating them, until he can see just what he is doing.

Therefore, to get a better view, and more room to work in, he empties the sac of its contents. For this purpose, DR. LUSK plunges a Spencer Wells's trocar into the tumor, drawing back the point so that its cutting edge does not protrude, and then allows the spring clamps, with which it is furnished, to catch the walls of the sac in order to secure the instrument firmly in place; a rubber tube attached to the trocar carries away the fluid into a vessel beneath the table. Then, as the tumor collapses, he seizes it with the vulsellum forceps, drawing a portion of the sac outside the opening in the abdominal wall, and, with the strong forceps of Spencer Wells, secures a firm grasp which will neither tear nor slip.

As the sac is drawn out of the wound, careful search is made for adhesions. Slight ones, he advises, can be torn away with the finger; but extensive bands connecting the sac with the neighboring viscera, should be ligated with carbolized silk, and divided; or they may be severed with the thermocautery knife. He cautions, however, against leav-

ing any bleeding points, so that, at last, after sponging the cavity, a perfectly dry peritoneal surface remains. He then continues to divide all adhesions until the tumor lies free, outside the abdominal cavity; those between it and the abdominal viscera being generally divided during the withdrawal. Moreover, the thickening of the peritoneum, in cases of extensive adhesions, makes it capable of standing a good deal of rather rude manipulation, without suffering much harm.

When the sac is about half emptied, he finds that it is often convenient to turn the patient over on her side, in order that the fluid may flow out more readily. When the main cyst is emptied, the hand is passed into the sac and search made for smaller cysts. These, he advises, can be ruptured with the fingers, and emptied through the main opening without any of the fluid escaping into the abdominal cavity.

As soon as the tumor is withdrawn from the abdomen, he is careful to see that the intestines do not protrude; this can be accomplished best of all by introducing into the abdomen the large, flat sponge, so as to cover the inner surface of the wound. And if the sponge be slipped under the abdominal wall, it can be made to cover all the space left open by the withdrawal of the tumor. Also, a good sponge will prevent air from getting into the peritoneal

cavity; besides holding the intestines in place, and preventing the blood from oozing into the abdominal cavity.

After withdrawing the tumor, the pedicle should be held up to the light, to avoid transfixing any large vessels. He then passes a Peaslee's needle through the pedicle, by means of which a double ligature can be withdrawn. The separate portions of the pedicle are then tied tightly, so as to constrict the parts included within them; after which, he cuts above the ligatures with strong scissors, and sears the cut surface with the thermo-cautery, partly by way of disinfecting, and partly to prevent all oozing of blood. Finally, for further security, a single ligature may be placed around the entire pedicle. The pedicle is then allowed to drop back into the abdominal cavity, but the threads should be left outside. The clamp is now a thing of the past.

After securing the pedicle, DR. LUSK takes out the flat sponge and the soft sponges, held by long sponge-holders behind the uterus down into the cul-de-sac of Douglas, noticing, on withdrawing them, if they absorb any fluid or blood. If so, he repeats the process until the sponges return nearly dry, when the wound can be closed without much risk to the patient. But if he finds a considerable amount of blood each time the sponge is taken out, it may

be certain, he cautions, that bleeding points, which have not been secured, exist somewhere; and if an attempt is made to sew up the abdomen before all bleeding is checked, the operator will incur great risk of losing his patient. Always, therefore, be careful, he advises, not to leave any bleeding points behind, but search for them until found, and arrest all oozing by ligation or the cautery. If the bleeding comes from the mesentery, tie the bleeding points. Or, sometimes he finds it better to ligate off a large mass from the mesentery at once, an act which is ordinarily followed by very little constitutional disturbance. If, however, the blood comes from the abdominal walls, it is usually better to touch the bleeding points lightly with the thermo-cautery.

In closing the wound, he passes the needle a half-inch from the cut border, obliquely downward, but so as to include a portion of the peritoneum, and then upon the other side, upward from the peritoneum to the surface of the skin, and draws the thread through. He then continues placing the sutures, at an interval of an inch from one another, until all are in place. Concerning this procedure, he has been accustomed to using silver sutures in preference to silk, but he does not believe that it makes much difference which is chosen. During their passage, however, it is best to leave a flat sponge beneath the

abdominal walls, to absorb the blood which may ooze from the needle punctures. Then, when the sutures have been inserted to the lower angle of the wound, this sponge should be removed, and the edge of the wound brought together. If the sutures have not been introduced so that the cut borders are evenly adjusted, but gaping in places remains, he puts in superficial sutures to remedy the defect. (It is astonishing how soon the opposing edges of the abdominal walls will adhere together. Thus, if the patient dies only two or three days after the operation, and the wound is examined, it will be seen that union, more or less close, has taken place.)

After the wound is closed, the whole abdominal surface is washed with a solution of carbolic acid, and the wound then covered with a piece of protective silk, four inches wide; on top of this several folds of carbolized gauze are placed, and then a piece of rubber cloth. Finally he pads the abdominal wall carefully with borated cotton, and bandages the dressing tightly, which will help greatly to prevent an excessive amount of abdominal distension.

The operation finished, DR. LUSK now places the patient in bed, and applies hot bottles to the feet and body, because it is necessary to guard against a certain amount of shock following the operation. The ether vomiting, which is likely to ensue, also

disappears most quickly if the introduction of any thing into the stomach is avoided.

And on account of the feeble condition of the patient, there is always a great temptation to use brandy, or some other stimulant, in liberal quantities, but the resulting nausea, he advises, more than counterbalances the benefit derivable from prematurely forcing the stomach; for nothing depresses a patient more than persistent vomiting.

He directs that the food, for two or three days, should consist of such fluids as the stomach will easily bear, and should be taken in small quantities. To relieve the thirst, small pieces of ice may be given. If the pulse is very feeble, and he thinks stimulants are required, whisky or ether may be given hypodermically, or brandy may be administered by the rectum. If possible, however, he considers it important to keep the intestines entirely at rest, for at least twenty-four hours, to avoid the dangers of peritonitis; also, keep the patient in the recumbent position, and very quiet. It is also necessary to be very careful of the stomach for the first three or four days after the operation. It is possible, he finds, to relieve the thirst to a great extent by injecting from four to six ounces of water, with the albumen of an egg, into the rectum every four hours. He also directs that the urine be drawn by a catheter

for two or three days, as it is desirable that the patient should avoid using the abdominal muscles. Usually, also, after the stomach has remained quiet for a day or two, the patient can begin to take milk and light food in small quantities. A tablespoonful of milk every half-hour is considered enough at first.

If there has been no special reason for disturbing the dressings, he advises that they be not touched till the seventh or eighth day. On the eighth or ninth day the bowels may be moved; after which, DR. LUSK takes out the sutures and replaces them by strips of adhesive plaster. At the same time he keeps the abdomen well bandaged to support the wound. Then, after three weeks, the temporary bandage may be dispensed with, and if the patient is doing well she can sit up a portion of the day; but a permanent bandage, made by a skilled person, should, he directs, be worn for at least a year. Sometimes, moreover, he uses drainage tubes, but very seldom. Where the operation is neatly and thoroughly done, he believes that drainage tubes are very rarely necessary.

DR. J. MARION SIMS advises that ovarian tumors, when complicated with pregnancy, should not be interfered with, if simple and not larger than twice the size of a fœtal head; but when they become

large, he is satisfied that operative procedure is the safest course to pursue. He also believes that operation should be resorted to, in these cases, early, if the tumor is of sufficient size to endanger the life of the woman.

Regarding drainage after ovariotomy, DR. SIMS advises that bloody serum is more dangerous in the peritoneal cavity than pure blood or pure serum, and requires drainage. If there are no adhesions to break up, the drainage tube is unnecessary. If there is ascites alone, it is unnecessary; but, if ascites exists complicating adhesions, then he uses the drainage tube, and is sure to have bloody serum evacuated by it. Also, if adhesions alone are present, without ascites, and he feels certain that every bleeding point has been secured, then, he advises, the operator may, with the utmost confidence, close the external wound without the drainage tube. But, if he is in doubt on this point, he thinks the following plan will remove that doubt.

Before introducing the large, flat sponge over the surface of the intestines, pass a sponge, of the size of a small orange, firmly held with locked forceps, down to the bottom of Douglas's pouch; the handle of the forceps projecting from the lower angle of the incision. Then place the large, flat sponge over the surface of the intestines, and proceed to pass the

sutures, leaving the two sponges *in situ*. When the sutures are all introduced, draw half to each angle of the wound, and remove the superficial sponge, squeeze it, and if it is dry, all is well in the region that it has just occupied. Then remove the small sponge with the locked forceps from the pelvic cavity, squeeze it, and, if it too is found to be perfectly dry, he then proceeds to close the external wound without the drainage tube.

But, on the contrary, if the large superficial sponge contains blood, or bloody serum, then, he advises, search must be made for the source of the oozing and arrest it; or, if he fails in this, he then resorts to the drainage-tube. But granting that the upper sponge is found to be dry, and the one from the pelvic cavity contains free blood, or bloody serum, then its source must be searched and secured, and if this fails, then, also, he resorts to drainage.

Finally, DR. SIMS is convinced that Keith's plan of drying out the peritoneal cavity completely, is the only one to give perfect immunity against sepsis. The lesson he advises, that he gathered from witnessing Keith's operation is—never to close the external wound till he has secured *every* bleeding vessel, every oozing point, and made sure that the peritoneum is perfectly clean and dry. It was long thought that treatment of the pedicle had much to do with the

success of the operation. But he thinks now that it matters very little what is done with the pedicle, whether the clamp, the ligature, or the cautery be used, provided every care is taken against the exudation of blood, or bloody serum, into the peritoneal cavity after the closure of the external wound.

DR. T. A. EMMET advises that, as a hæmostatic in ovariotomy, he has used water, as hot as the hand could bear, with success, the jet being directed on each bleeding spot in succession, with immediate and surprising effect. By this means, not only is all hæmorrhage staunched, but all the lymph is washed away, and the color of the membrane changed. In one case in which the sac had burst, discharging glutinous matter which could not have been absorbed by a sponge, he removed the tenacious contents with the jet of hot water from a Davidson syringe. The patient, he advises, recovered without a bad symptom, while similar cases usually die after this material has escaped into the abdomen.

Concerning antisepsis, he believes this must be carefully observed, if good results are to be obtained. For an anæsthetic, ether is much preferred by him to chloroform, as being safer and more desirable. He does not favor puncturing and evacuating the cyst before operation, but believes that with proper care the danger of fluid entering the abdominal cavity can

be guarded against. In regard to treating the pedicle by ligature or the cautery, he thinks it still an open question which method is preferable. The advantages of drainage, he considers, are unquestionably great, but under the most favorable circumstances its use is limited, since peritonitis following the operation mats up everything in twelve hours; and he finds that where the tube is needed most, it is least applicable. With respect to the use of cold after the operation, in DR. EMMET'S experience it does not check the peritonitis, but only the wear and tear.

DR. P. F. MUNDE'S method of procedure is usually as follows:

Just before the operation, to render etherization more easily borne, gr. xxx. of potassium bromide are given. Then, where there is the slightest doubt of the character of the tumor, aspiration is done. An incision is then made, four inches in length, dividing layer after layer of the abdominal tissues, until the glistening membrane of the tumor is brought to view. If necessary, the wound is then enlarged, and a thick sound swept around the tumor in search of adhesions. A Spencer Wells's trocar is then introduced and some of the fluid drawn off; or several punctures may be made in different places; or, sometimes the central mass is further torn open with the fingers, to facili-

tate the escape of the contents, always taking care, however, that none of this material shall get into the peritoneal cavity. After the size of the tumor is reduced by this means, it is then drawn out through the wound, and if adhesions to the abdominal viscera and walls are found, these are tied off with silk ligatures, the pedicle clamped, and under it a permanent silk ligature placed, and the pedicle divided between the two, subsequently cauterizing the stump with Paquelin's cautery and dropping it into the abdominal cavity.

After removal of the tumor, the abdominal cavity is thoroughly cleansed by means of sponges soaked in carbolized water, and closed by silk sutures. About fifteen or twenty deep and superficial sutures in all are put in, taking care to include the peritoneum in the former. The wound is then covered with linen smeared with carbolized vaseline, over this carbolized oil-silk, carbolized absorbent cotton, all fastened down by strips of adhesive plaster, more cotton, and, finally, a bandage over all. Magendie's solution, m. x., is then administered, together with brandy, hypodermically, but more especially in those cases where the pulse is feeble and collapse is feared. No attempt is made by DR. MUNDE to move the bowels until about the tenth day. He also considers it best to keep the stomach quiet for one or two days

after the operation, and rectal suppositories may be used as indicated. Then, from the tenth to the fifteenth day, alternate stitches are taken out, so as to guard against the possibility of the wound gaping. And, finally, the patient is allowed to get up on the fourteenth to sixteenth day, firmly bandaged, but, he advises, she should wear an abdominal supporter for a year.

DR. E. NOEGGERATH believes that all the best hygienic surroundings should be secured during ovariotomy, regarding isolation, disinfection, fresh air, etc. One of the great advantages of antisepsis is, he finds, that patients now recover in the hands of inexperienced operators who never would have recovered without it. As to anæsthetics, after a trial of several narcotics, he has returned to the use of chloroform. The patient also takes a drachm of bromide of potassium on each of the two days preceding operation, and on the morning of the operation thirty grains. By this method less of the chloroform is required to produce narcosis. He also gives a full dose of chloral by the rectum, which further diminishes the danger.

It has been the custom, he advises, to perform ovariotomy in a warm, moist atmosphere as guarding against peritonitis. Instead of this he places the patient on a rubber bed filled with water heated to

100°. This dry heat he finds much less depressing and more convenient of application; more easily regulated than the moist heat.

A third danger connected with ovariotomy lies in the formation of septic material in the abdominal cavity. The danger would, he believes, be lessened by adopting a method by which the air, and hands, and instruments are in contact with the peritoneum a shorter time than by the present plan of operating. It is such a method as this that he follows, and which is considered by him as a *new method of performing ovariotomy.* He raises the skin and subcutaneous tissues to the extent of about three inches, but instead of cutting through the peritoneum he plunges the trocar into the cyst and evacuates its contents. If the cyst contains pus or decomposed blood, he injects into the cavity a two and one-half per cent. solution of carbolic acid. After emptying the cyst, the handle of the trocar is depressed toward the skin; this uplifts the anterior abdominal wall, which is incised, having the trocar as a guide down to the cyst wall. He then ties the pedicle and removes the cyst.

DR. NOEGGERATH claims that by this method the operation is simplified, and the violence of shock and the chance of infection lessened.

There are two contraindications, however, to the

employment of this method of operating. First, he advises, where the solid elements of the tumor are in excess of the liquid, and second, where the sac is small, in which case there is danger of cutting a loop of intestine which may be in front of the cyst; but this latter condition at least can be recognized and guarded against.

In regard to the treatment of the pedicle, he believes that, in the large majority of instances, the intra-peritoneal method is the best; but in some cases drainage is the only proper treatment. For these latter cases he has adopted also a new method of after treatment, which consists in the use of the warm bath, the water being in contact with the peritoneal cavity. The bath is to be connected with hot and cold water, and with steam pipes, and arranged for the attachment of a hammock for the patient to lie in. For this purpose, he may use, as a substitute, a common moveable bath tub with a double bottom, but must retain the water at a certain temperature without frequent additions of hot water. The action of the constant contact of water, in the manner described, is to prevent sepsis.

A contraindication to the use of the bath, he advises, is in persons very much weakened.

DR. C. S. WARD advises that with the completion of ovariotomy the operator's anxieties are but just

beginning. Although they may exist actively during that procedure, he is in a position to deal promptly with complications which he can *see*, and which develop, so to speak, under his hand. He is then in a more special degree the active agent, controlling *the physical* conditions which he meets or creates; while *after* the operation he has to wait upon certain *vital* forces, which are variously modified by age, temperament, the physical condition of the patient, and the traumatism in each individual case.

In order to intelligently conduct a case he believes that the operator should have a clear idea of the processes set in operation by surgical interference, that he may know in what direction to expect this or that manifestation and its import, and be ready to meet unfavorable symptoms at their very inception.

For practical purposes concerning treatment, he separates all cases into two classes.

First.—Simple cysts with few or no adhesions.

Second.—All other ovarian tumors, whether cystic or solid, having such parietal or visceral attachments as to necessitate much injury to surrounding structures on detachment, or whose contents are in themselves irritating or of such a character (thick colloid) as not to be readily removed from the peritoneal cavity, should they escape into it.

In the first class, assuming that by dexterous operation and careful ligation he has secured himself against shock and hæmorrhage, there remains ordinarily but one source of *danger*—peritonitis—and that from the limited abdominal incision or the severed pedicle.

In the second class the list of dangers is largely increased, the principal ones being: 1. Shock: due to actual severity of the case from violence done; due to hæmorrhage; due to unnecessary and prolonged exposure from indecisive procedure. 2. Hæmorrhage: from the pedicle; from severed adhesions; from viscera from which adhesions have been torn; from hæmorrhage occurring within the pedicle from incautious traction. 3. Peritonitis: visceral, parietal. 4. Septicæmia with concomitant peritonitis. 5. Cellulitis.

Each of the above conditions, DR. WARD finds, except shock and hæmorrhage, expresses itself by an elevation of temperature; but, as is known to all, the value or import of the same degree of elevation of temperature is quite different, according to whether it be due in the one case to a peritoneal or a cellular inflammation; hence the great importance of an early and correct diagnosis of the condition developing, as manifested by increase of temperature. In one case, the cellular, he rests at ease, quite

sure of the competency of nature to bear without risk a certain elevation, and equally sure of a limitation; while in another—the peritoneal—there is, with no greater elevation, perhaps, a constant menace, if not from the violence or area of inflammation itself, from failure of a very impressionable ganglionic system induced by that inflammation.

The differential diagnosis, he advises, is greatly aided by the time which has elapsed since operation, when the elevation of temperature first manifested itself, as well as the character of the case. If simple, with no adhesions, and no accident has occurred, or unnecessary invasion of the peritoneal cavity by operator's hands or instruments, there is, ordinarily, but one source of danger, that from peritonitis, and he is confident, as a matter of clinical experience, that such a peritonitis would necessarily manifest itself within seventy-two hours, and usually within forty-eight. But, suppose, in such a case, from the fourth to the sixth day, and even many days later, there appears a beginning elevation attended by some pain, not colicky, and tenderness, with absence of tympanites. This is not a peritoneal inflammation, for that is prompt in declaring itself, as the peritoneum is quick to resent any injury. The practitioner must look for causes extra-peritoneal, inflammation in a less impressionable tissue, namely, the

areola tissue, and that, too, in the abdominal wall alongside of the incision, and which is readily determined by gentle palpation and inspection.

In the treatment of such a condition DR. WARD seeks, by prudently abundant diet, to sustain the patient, having no fear, as in peritonitis, of exciting peristalsis, to the great injury and suffering of the patient. Abscesses, in such cases, he finds, have usually but small influence on the general progress of the case, and are usually limited in area and duration, being the result of a surgical injury, and not of pyæmia. As to temperature, it usually ranges from 100.5° to 102°. Local applications, he advises, are rarely needed, though warmth is often agreeable, and may be applied by means of spongio-piline, wrung out of hot carbolized water, poultices, the hot water bag, or the hot water coil—quite the opposite in principle to the treatment of peritonitis, as will be seen. Resort to the bistoury in such cases is rarely necessary, as pus very rarely forms before time for removal of the sutures, on the eighth or ninth day, and it is through the tract of the sutures that pus escapes.

Concerning peritonitic inflammations—In a simple, uncomplicated recovery after ovariotomy, during the first twelve or fifteen hours, the intoxication and vomiting occasioned by ether—the latter perhaps in-

creased by the morphia given—are usually the only disagreeable symptoms. There is acceleration of pulse from ether stimulation, the skin remaining cool, temperature 99° to 100.5°, and tending to approach more nearly still the normal as time advances. The dressings and sutures may be removed on the eighth day, when, if the abdominal walls are thin, he expects to find a perfect line of union, and has now to wait but a few days before the patient is quite well, so far as the operation is concerned.

The two great sources of elevation of temperature, DR. WARD advises, in tumors of the second class, are peritonitis and septicæmia. It is an interesting clinical fact, that many of the worst forms of tumors, whose attachments to the parietes, deep in the pelvis, and even omental and intestinal, are so firm and universal, seem to escape peritonitis.

The resources at command are unfortunately mainly but two—morphia to control peristalsis, and the pain induced by it as well as from the traumatism. This must be given to absolute relief from pain, not suffering the patient to be conscious of such for one moment, in order that that element may not be the one to destroy the repose of the patient. The amount of morphine used by him, after operations, varies greatly. He has had a case where eighteen minims of Magendie's solution were given

at a dose, and repeated within an hour. A dose of ten minims every four hours represents about the average. The dose is, however, regulated by the amount of pain, and the number of pulsations and respirations.

A more important matter of treatment, however, is the application of cold to the abdomen, which is best made by the rubber tube coil laid upon the abdomen, through which a continuous current of ice-water flows, or by the use of the Kibbee cot; but the latter is a very disturbing and troublesome method, and one, as he has almost uniformly seen, provocative of diarrhœa. In this respect, the application of the coil should be resorted to, where the character of the case is one to warrant the belief that peritonitis will be excited, just as soon as the temperature reaches 100°, and the effort made to keep it, the temperature, there. If peritonitis is to be controlled by this means, he advises, it must be taken at its very inception, and before it has impressed the ganglionic system. The patient must be protected from the danger due to the high temperature, regardful that there comes a time when control of temperature is of no avail, and that the patient sinks from peritoneal changes, or failure of ganglionic system as before mentioned. But in the early application of the coil, it is employed as a true anti-

phlogistic. He does not say that cold will cure peritonitis or always prevent it. But, he believes, intelligently applied, it often does so modify its severity as to give the patient a chance for recovery when it might have gone beyond control.

Septicæmia, he finds, as a rule, appears later than uncomplicated peritonitis, beginning very like it, and usually more or less complicated by it.

When abdominal drainage is practiced by proper drainage-tubes in efficient hands, it is marvelous at times to see the effect of removal of septic fluids from the cavity through the tube, and the long continuance of moderate temperature, when that well, into which the tube enters, is thoroughly washed out with either pure or carbolized water. The cases, he advises, which recover from such abdominal drainage are septic cases, due to decomposing fluids which have oozed from disrupted vessels from various sources, or from ovarian fluids not of the dense colloid variety; in other words, fluids which will gravitate to the well which the drainage-tube occupies. Unfortunately, where there has been an escape of dense colloid material, drainage accomplishes but little, and septicæmia once established, as it surely will be, is fatal.

Finally, in the curable forms of septicæmia, DR. WARD'S aim is to effect the removal of septic fluids,

control the temperature by the coil, relieve the pain by morphia, and the cautious administration of nutriment either by the stomach or bowel.

EXTRA-UTERINE PREGNANCY.

DR. WM. T. LUSK advises that the treatment of extra-uterine fœtation varies in accordance with the stage of pregnancy and the condition of the fœtus. For the sake of convenience, he distinguishes *first*, cases of early gestation; *second*, cases of advanced gestation; *third*, cases of gestation prolonged after the death of the fœtus.

Cases of Early Gestation.—The indication for treatment in the early months, he advises, is plainly to adopt measures to destroy the life of the fœtus, and thus, by arresting the growth of the ovum, avert the danger of rupture and hæmorrhage. Indeed, in this way he simply follows the plan marked out by nature, spontaneous recovery commonly following the accidental death of the embryo.

The methods which have heretofore been employed to destroy the ovum are, (*a*) puncture of the sac, (*b*) injections of morphia and other solutions, (*c*) elytrotomy, and (*d*) the several electric currents.

Puncture of the sac, he finds, is usually easily effected by the introduction of an exploratory trocar

through either the vaginal or rectal wall. The operation is to be recommended on the score of simplicity, but has not been attended with very brilliant results, as fatal issues from septicæmia and peritonitis have followed puncture.

Concerning injections of solutions into the sac, designed to destroy the fœtus, he mentions that Joulin proposed injections of sulphate of atropia (gr. $^1/_6$ dissolved in a few drops of water) into the sac, by means of a long hypodermic syringe. In practicing this, DR. LUSK directs that the needle of the syringe should be introduced into the sac through the abdominal or vaginal walls; a few drops of fluid should then be withdrawn, and its place supplied by the solution containing the poison selected. This operation is repeated every second day, until the diminished size of the ovum affords evidence that the result sought for has been accomplished. The operation, he finds, seems to produce but slight inflammatory disturbance, and the maternal system has been found not to feel the influence of the narcotic.

Regarding electricity, the transmission of the Faradic current, which is preferred by him, through the ovum, has proved a safe and efficient method for destroying the life of the fœtus during the first three months of its existence. The application, he advises, consists in passing one pole into the rectum, to the

site of the ovum, and pressing the other upon a point in the abdominal walls situated two or three inches above Poupart's ligament. The full force of the current of an ordinary one-cell battery should be employed for a period varying from five to ten minutes. This treatment should then be continued for one or two weeks, until the shrinkage of the tumor leaves no doubt as to the efficacy of the Faradic action. When the tube ruptures without previous warning, treatment should be directed to the arrest of internal hæmorrhage, and the removal of shock. He applies an ice-bag to the abdomen, which meets the first indication, but it is to be employed with circumspection where great depression already exists. Compression of the aorta, or a sand-bag laid upon the abdomen over the site of the ovum, may prove of service. The patient should also be cautioned to maintain the most perfect quiet; opiates should be administered, and stimulants should be given in small quantities, but at short intervals. The subsequent treatment, he directs, should be that for peritonitis.

As to laparotomy in these cases of early gestation, Dr. Lusk advises that probably no one has, so far, had the hardihood required to do this operation. The reasons for this backwardness are probably to be found in the uncertainties of the diagnosis, the

risk of finding the sac hopelessly matted to the adjacent viscera, the dislike for operating on a dying woman, and the fact that a considerable number of spontaneous recoveries occur, either from the mummification of the fœtus, or by the limitation of the sanguineous effusion and the production of a circumscribed hæmatocele.

Cases of advanced gestation (*fœtus living*).—The operation of laparotomy, in such cases, is only applicable to instances where the sac is lower down in the pelvis, and the presenting part can be easily reached through the cul-de-sac of Douglas.

Cases of gestation prolonged after the death of the fœtus.—He believes that it is an accepted rule not to operate in advanced extra-uterine pregnancy during the continuance of labor pains, as the expulsive efforts, at the same time, diminish the chance of saving the life of the child, and increase the danger of the mother. He advises that opiates should be administered and absolute rest be enjoined, with the view of hindering the separation of the placenta, an accident necessarily followed by hæmorrhage, and possibly by rupture of the sac.

It is obvious, he also cautions, that the presence of a dead fœtus seriously compromises the safety of its possessor. To be sure, many cases have been recorded where, eventually, suppurative processes

have led to the formation of fistulous openings, communicating with the abdominal walls, the rectum, the vagina, and even the bladder, through which the fluid contents first escape from the sac, and afterward the piecemeal elimination of the fœtus spontaneously takes place. And as, under these circumstances, the enlargement of the openings into the cyst, the removal of the contents, and the treatment of the cavity like an ordinary abscess, is attended with but moderate risk, it has been proposed, he advises, to postpone surgical aid, until nature indicates the channel by which elimination is to be effected. This proposition, however, ignores the deplorable condition to which the suppurative process inevitably reduces the patient, and the incidental dangers to life.

During the last decade, DR. LUSK finds that the success of secondary laparotomy, as distinguished from that performed during the life of the fœtus on the one hand, and simple incisions designed to enlarge the fistulous openings on the other, has been such as to warrant its being placed in the category of justifiable operative procedures. And, of the two dangers inherent to the primary operation, viz., hæmorrhage and septicæmia, the former, he advises, is greatly lessened by the cessation of the fœtal circulation, and by the gradual thrombosis and oblitera-

tion of the maternal vessels, and the cutting off of the blood supplies to the placenta. While, with the present perfection to which antiseptic measures have been carried, he considers that the risks from septicæmia are greatly diminished, though not entirely done away with.

In his estimation, also, the time for the performance of laparotomy is of great importance. There are, as yet, no signs known by which the time at which the obliteration of the placental vessels becomes complete, can be ascertained. But he believes that it is certainly evident that, when the circumstances admit of delay, it is best to defer operative measures, and treat the patient symptomatically, with pure air, nourishing food, quinine, and gentle laxatives, until the obliteration of the maternal vessels has probably taken place (five weeks, or more, after the death of fœtus). In case, however, of marked septic symptoms, he advises that the opening of the sac should not be delayed, as the subsequent use of antiseptics is, at least, calculated to restrain the pernicious influence of the decomposing contents upon the entire organism.

Finally, he directs that the operation for laparotomy should be performed with antiseptic precautions. The incision is usually made along the linea alba, and in case the sac is not found adherent to the

abdominal walls, it should be stitched, previous to opening, to the cut borders of the abdominal wound. The placenta should be left to come away spontaneously, unless it occupies the site of the incision. Also, the wound should be closed above, and left open below for the passage of the cord and the introduction of antiseptic injections.

Moreover, DR. LUSK advises, no rules can profitably be laid down as to the plans to be pursued in the enlargements of fistulous openings. Each case must be treated on its own merits, and the surgical aid rendered must be adapted to the individual peculiarities which characterize it.

DR. T. GAILLARD THOMAS gives the following rules for the treatment of extra-uterine pregnancy:

I.—If an ectopic tumor be discovered, and its nature pretty well settled before the end of the fourth month of gestation, he would destroy the life of the child by electricity in preference to all other methods which have been proposed, preferring galvanism for this purpose.

II.—Should the fourth month of gestation be passed, and surgical interference be called for, laparotomy, or, if the tumor be low down in the pelvis, elytrotomy, should be preferred to the use of electricity, which leaves a large fœtal body to undergo absorption inside the body of the mother.

III.—Should the pregnancy be abdominal, the practitioner might watchfully await the full term of gestation, and deliver, then, by laparotomy or by elytrotomy combined with the forceps or manual delivery.

IV.—Should full term be passed, and the fœtus be dead, the practitioner should wait and watch, if possible, until nature demonstrates the outlet by which she desires the extrusion to be effected; then she should be aided. If, on the other hand, bad symptoms, under these circumstances, at any time show themselves, laparotomy, under strict antiseptic precautions, should be promptly resorted to.

V.—Should rupture of the fœtal nidus have occurred before diagnosis has been fully made, the practitioner should wait and see whether nature is powerful enough to overcome the shock and control hæmorrhage; then, further, if the patient is going to escape the dangers of peritonitis and septicæmia. If these favorable results do not occur, if hæmorrhage is about to destroy the patient immediately, or if septicæmia attacks her later, laparotomy, followed by antiseptic cleansing, should be promptly adopted.

Concerning elytrotomy, DR. THOMAS reports a case where he cut into the sac through the vagina, by means of the incandescent knife, attached to the electro-cautery apparatus. The patient narrowly es-

caped with her life, but finally recovered. He also recommends Paquelin's cautery, brought to a red heat. After cutting slowly through the sac, he advises removing the fœtus, but not the placenta, then filling the sac with antiseptic cotton, which should be removed once in thirty-six hours. He offers the operation only, however, in cases where the severity of the symptoms demand immediate action.

DR. H. J. GARRIGUES considers, with reference to the several methods at command for killing the child, that electricity is perfectly safe as compared with other means. He finds that there are differences of opinion, however, with regard to the use of this agent in the early or the later stages of the pregnancy, but he does not believe that any objection to the destruction of the life of the child should exist, if it becomes necessary in order to secure the safety of the mother. Also, two objections have been raised against it, namely: that it is not reliable; and that it is apt to cause rupture of the cyst. The second he considers purely theoretical. With regard to the first, up to the middle of the fourth month, he advises, it has been successful in every case in which it has been employed.

The conclusions arrived at by DR. GARRIGUES, from experience, are, that electricity has proven to be an efficacious and safe agent for arresting extra-

uterine pregnancy during the first three months, and perhaps in some cases where the pregnancy has even advanced more or less into the fourth month; and, moreover, that it seems likely that the same agent may be profitably used at any period of fœtal life.

DR. M. A. PALLEN considers the treatment of extra-uterine gestation to be undoubtedly the removal by laparotomy of the fœtus, stitching the walls of the abdomen and those of the sac together, and allowing the placenta to come away by softening under antiseptic washings, coincident with shrinkage of the gestation sac. He emphasizes laparotomy, instead of elytrorraphy, because he believes there is great danger in provoking fatal hæmorrhage by striking the placenta, when dividing the vaginal walls with a Paquelin's thermo-cautery.

DR. A. D. ROCKWELL thinks that the fœtus, in extra-uterine pregnancy, can be destroyed by electricity without harm to the mother. In the employment of this agent, he considers it an important point to be decided, as to best form of electricity to be used. For not only has galvanism and electro-magnetism been successfully employed, but it is said that the common magneto-electric battery has also proved sufficient, although from both a physical and physiological point of view, as well as through the teachings of experience, he does not doubt that

galvanism is preferable to the other forms. It is more certain in its effects. It has a greater power of overcoming resistance, and consequently its influence is felt deeper than the other forms.

In using this agent, he introduces one pole to the mass through the vagina, or into the rectum, and places the other over the tumor externally, making rapid interruptions. Or, the current may be quickly increased without interruption, and allowed for a moment to pass in a continuous stream. The current strength employed by him also varies, in different cases, from twelve to sixteen to about twenty-four volts.

Four important effects, he advises, attend the passage of the electric current through the living body, and all these undoubtedly enter as factors, either in destroying the life of the fœtus, or in the subsequent process of absorption.

These effects may be designated as mechanical, physical, chemical, and physiological.

The mechanical effects of the interrupted galvanic current, he finds, are equal to those of the Faradic current, while the physical effects, manifested by heat, and the modification of endosmose and exosmose are in the main the results of galvanic action.

By the passage of the galvanic current, also, the

endosmotic phenomena may be both stimulated and reversed; while the Faradic current from the secondary coil produces no such effect. The current from the inner coil produces these effects, but in a much less degree. Chemical or electrolytic effects, again, are almost wholly the result of galvanic action, and, he advises, it should be remembered that the electrolysis of organic substances starts a process that continues long after the current ceases to flow. Moreover, the physiological effects of electricity are those which take place by virtue of the vital properties of the body, and unlike the other effects, are only observed in living substances. These effects are manifested on the circulation, on secretion and excretion, but, he reminds, only as absorption is effected is it of interest here, and it is very evident that the absorptive powers of the secondary current are quite limited.

In any case of tubal pregnancy, DR. ROCKWELL cautions, and especially in those advanced conditions where the tube is greatly distended, and there is danger of spontaneous rupture, the possibility of hastening this catastrophe in the attempt to destroy the life of the fœtus should never be lost sight of. The tubes themselves are but slightly supplied with muscular fibre, and the danger would more especially arise from the powerful compression that is liable to

be exerted by the abdominal muscles, and the effort, he directs, should be so to diffuse the current proceeding from the external pole, as to produce the least mechanical effect possible.

The results of the electrolysis are well known, but in no other form of tumor, cystic or otherwise, is it possible for the galvanic current, used as described, to produce similarly prompt and effective results.

In regard to the effects of electricity on normal pregnancy, he considers it a mistake to suppose that abortions are readily produced by electricity. For, without the electrode is introduced directly into the uterus, which would of course be sufficient without the passage of any current, the strongest treatment that it is prudent to give may prove insufficient. Of this he has had evidence in several justifiable attempts to bring on a miscarriage.

CHLOROSIS.

DR. T. GAILLARD THOMAS advises the administration of nerve tonics, strychnine, arsenic, iron, the bitter tonics, and the hypophosphites. Also, should the patient bear it well, he directs that the electric current be employed; moreover, he often finds that general electrization is very beneficial. The anæmia, which is usually present, should be treated by iron. The following is considered by him to be an excellent combination:

℞.	Ferri vini amari . . .	℥ viiss.
	Tinct. nucis vomicæ . .	ʒ iv.
	Sol. potass. arsenit. . .	ʒ ii.

M. Sig. A dessertspoonful in a wineglassful of water, just after each meal.

The diet should also receive careful attention, and be made most nutritious in character, consisting of meat, milk, animal broths, eggs, etc., together with wine, or malt liquors.

In addition to these measures, DR. THOMAS directs that, if practicable, the patient should have the benefits of the peculiar influence of travel, change of

air, etc., and systematic exercise for one-half an hour every morning and afternoon, such as by the use of the rowing machine. She should also take Turkish baths three times a week, for a considerable time. By this means of treatment, faithfully carried out and persisted in, he advises that a marked change for the better will unquestionably follow.

DR. W. H. THOMSON considers an aloetic purge often of excellent effect in the chlorotic form of headache, and prescribes the following in numerous instances:

℞. Saponis . . . . . gr. v.
Pulv. nucis vomicæ . . . gr. i.
Pulv. aloes . . . . . gr. i.
M. Ft. pil. No. i.

Aloin and strychnine, he advises, make a very good pill, but he prefers the above, as the soap neutralizes the griping effect of the aloes. Then he also gives iron. Moreover, the feet may be kept warm by applying to them a bag of hot salt, or bottles of hot water.

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